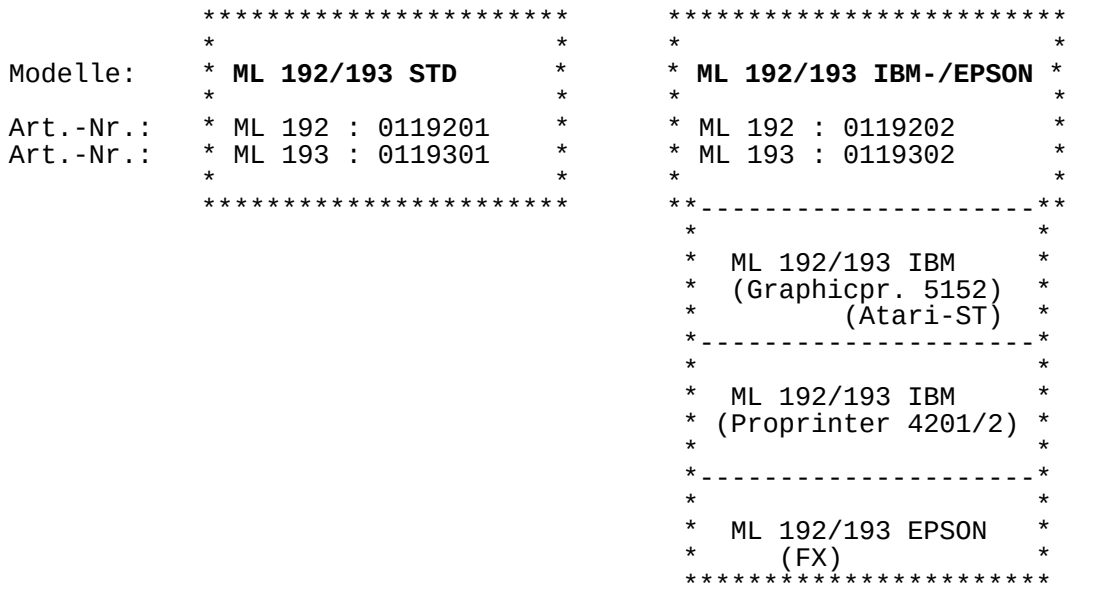
PRINTERHANDBUCH

OKI Microline 192/193



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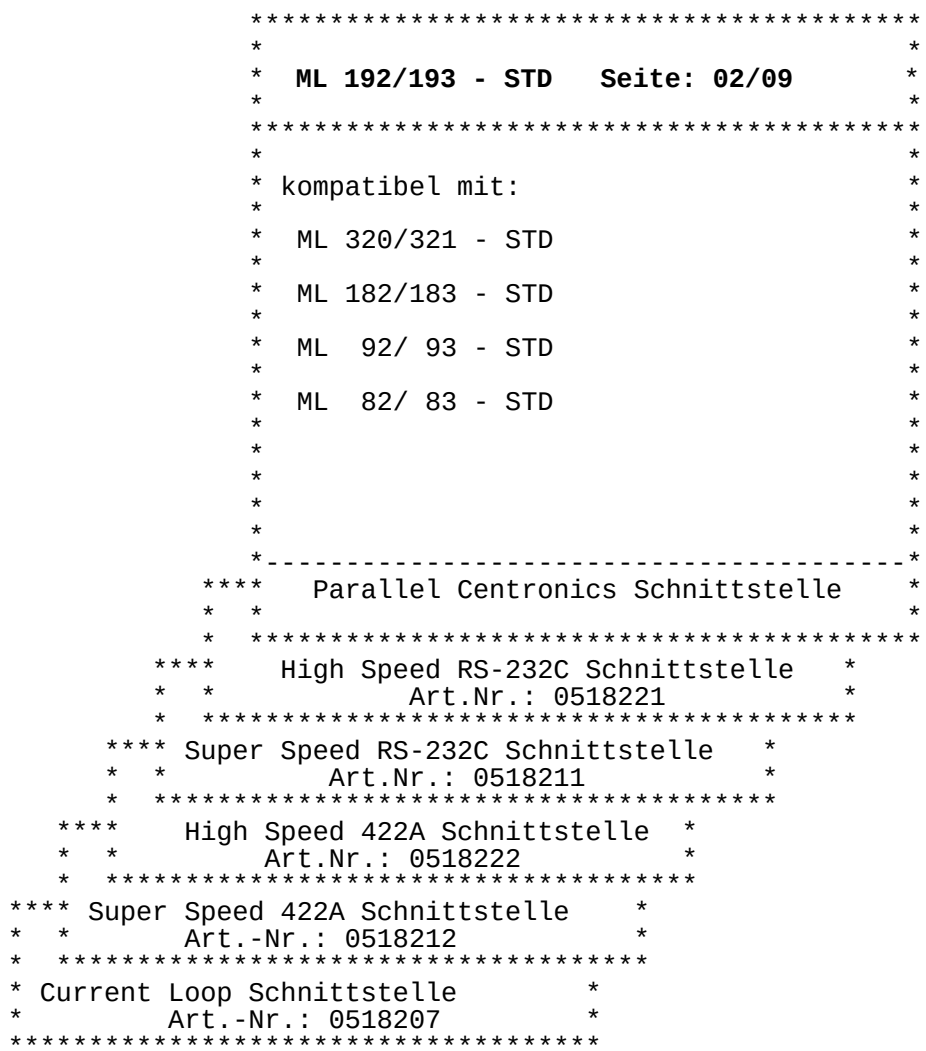
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kompatibel mit:
ML 320/321 - STD
ML 182/183 - STD
ML 92/ 93 - STD
ML 82/ 83 - STD
Parallel Centronics Schnittstelle
High Speed RS-232C Schnittstelle
Art.Nr.: 0518221
Super Speed RS-232C Schnittstelle
Art.Nr.: 0518211
High Speed 422A Schnittstelle
Art.Nr.: 0518222
Super Speed 422A Schnittstelle
Art.-Nr.: 0518212
Current Loop Schnittstelle
Art.-Nr.: 0518207

FUNCTION	COMMENT	ASCII	HEXADECIMAL
CHARACTER SET			
BLOCK GRAPHIC CHAR. SET		ESC ! 1	1B 21 31
IBM CHARACTER SET		ESC ! 2	1B 21 32
NATIONAL CHARACTER SET		ESC ! n	1B 21 n
SHIFT IN	7 BIT:GET LOW ASCII	SI	0F
SHIFT OUT	7 BIT:GET HIGH ASCII	SO	0E
STANDARD CHARACTER SET		ESC ! 0	1B 21 30
COMPOSITE COMMANDS			
COMBINED CR/LF		ESC ? n :	1B 3F n 3A
COMBINED GRAPHIC COMMANDS		ESC * n1 n2 :	1B 2A n1 n2 3A
COMBINED PRINT MODE CMDS.		ESC & n1-n4 :	1B 26 n1-n4 3A
CUT SHEET FEEDER			
CSF EJECT		ESC V	1B 56
CSF INSERT		ESC S	1B 53
DOWNLINE LOADABLE CHR.GEN			
COPY STD SET TO DLL CG		ESC $	1B 24
DESIGNATES DLL QUASI-NLQ		ESC 7	1B 37
DESIGNATES DLL UM CHR.SET		ESC 2	1B 32
EXIT DLL		ESC 0 OR ESC 1	1B 30 1B 31
LOAD DLL ASCENDER (UM)		ESC % A m n1-n11	1B 25 41 m n1-n11
LOAD DLL DESCENDER (UM)		ESC % D m n1-n11	1B 25 44 m n1-n11
EXECUTION			
BACKSPACE		BS	08
CARRIAGE RETURN		CR	0D
CLEAR BUFFER,SET DEFAULTS		CAN	18
DELETE LAST CHARACTER	IN BUFF.BEFORE PRINT	ESC DEL	1B 7F
FORM FEED		FF	0C
LINE FEED		LF	0A
LINE FEED, REVERSE	SEE COMPOSITE CMDS.:	COMPOSITE CR/LF	
PRINT SUPPRESS OFF		DC1	11
PRINT SUPPRESS ON	NO PRINT UNTIL "DC1"	DC3	13
SET DEFAULTS,PRINT BUFFER		ESC CAN	1B 18
VAR. LINE FEED n/144"		ESC % 5 n	1B 25 35 n
FORMATTING			
DIRECT SKIP		ESC VT n1 n2	1B 0B n1 n2
FORM LENGTH BY 1/2 INCHES		ESC G n1 n2	1B 47 n1 n2
FORM LENGTH BY LINES		ESC F n1 n2	1B 46 n1 n2
HORIZONTAL TABULATOR		HT	09
HTABS BY DOTS		ESC ETX n1-n4 CR	1B 03 n1-n4 0D
HTABS BY DOTS		ESC ETX CR	1B 03 0D

HTABS CLEAR		ESC HT CR	1B 09 0D
HTABS SET BY CHARACTERS		ESC HT n1 n2 n3 CR	1B 09 n1 n2 n3 0D
LINE FEED ONLY	PRINTS DATA, NO "CR"	ESC DC2	1B 12
MARGIN SET LEFT	BY DOT COLUMN	ESC % C n1-n3	1B 25 43 n1-n3
MARGIN SET RIGHT	BY DOT COLUMN	ESC % R n1-n4	1B 25 52 n1-n4
PRINT POSITION BY DOT		ESC % B n1-n4	1B 25 42 n1-n4
SKIP OVER PERFORATION	1/3",	ESC % S n	1B 25 53 n
TOF SET		ESC 5	1B 35
VERTICAL TABULATOR SKIP	TO VFU SELECTED POS.	VT n	0B n
VFU LOAD START CODE		DC4	14
VFU LOAD STOP CODE		?	3F

FUNCTION	COMMENT	ASCII	HEXADECIMAL
GRAPHICS, BIT IMAGE			
DENSITY DOUBLE		ESC R	1B 52
DENSITY QUADRUPLE	SEE COMPOSITE CMDS.:	COMPOSITE GRAPHICS	
DENSITY SINGLE		ESC Q	1B 51
DENSITY SINGLE		ESC P	1B 50
GRAPHIC END		ETX STX	03 02
GRAPHIC LF WITHOUT CR		ETX DC4	03 14
GRAPHIC LINE FEED WITH CR		ETX SO	03 0E
GRAPHIC START		ETX	03
TEXT LINE FEED WITH CR		ETX LF	03 0A
TEXT LINE FEED WITHOUT CR		ETX DC2	03 12
LINE SPACING			
6 LPI		ESC 6	1B 36
8 LPI		ESC 8	1B 38
VAR. LINE SPACING n/144"		ESC % 9 n	1B 25 39 n
MISCELLANEOUS			
PAPER OUT SENSOR OFF		ESC E 1	1B 45 31
PAPER OUT SENSOR ON		ESC E 0	1B 45 30
PRINT BIDIRECTIONAL		ESC =	1B 3D
PRINT SPEED FULL		ESC >	1B 3E
PRINT SPEED HALF		ESC <	1B 3C
PRINT UNIDIRECTIONAL		ESC -	1B 2D
PRINT MODE			
10 CPI	PICA	RS	1E
12 CPI	ELITE	FS	1C
17 CPI	CONDENSED	GS	1D
DESIGNATES NLQ MODE		ESC 1	1B 31
DESIGNATES UTILITY MODE	UTILITY MODE	ESC 0	1B 30
DOUBLE WIDTH	USED WITH RS,FS,GS	US	1F
DRAFT MODE DESIGNATE		ESC # 0	1B 23 30
EMPHASIZED OFF	ALSO ENHANCED OFF	ESC I	1B 49
EMPHASIZED ON		ESC T	1B 54
ENHANCED OFF	ALSO EMPHASIZED OFF	ESC I	1B 49
ENHANCED ON		ESC H	1B 48
ITALICS (SLANT) OFF		ESC ! *	1B 21 2A
ITALICS (SLANT) ON		ESC ! /	1B 21 2F
PROPORTIONAL SPACING OFF		ESC Z	1B 5A
PROPORTIONAL SPACING ON		ESC Y	1B 59
SPACE BETWEEN CHARACTERS		ESC N n	1B 4E n
SUBSCRIPT OFF		ESC M	1B 4D
SUBSCRIPT ON	STOPS ALSO SUPERSCRIPT	ESC L	1B 4C
SUPERSCRIPT OFF		ESC K	1B 4B
SUPERSCRIPT ON	STOPS ALSO SUBSCRIPT	ESC J	1B 4A
UNDERLINE OFF		ESC D	1B 44
UNDERLINE ON		ESC C	1B 43

I. Proportional characters: Width Table Firmware:

Proportional Spacing : (ESC Y - ON, ESC Z - OFF)

CHARACTER CODE			SETWIDTH
HEX	DEC	OCT	#/120"
00	000	000	=
01	001	001	=
02	002	002	=
03	003	003	= 12
04	004	004	= 12
05	005	005	= 12
06	006	006	= 12
07	007	007	=
08	008	010	=
09	009	011	=
0A	010	012	=
0B	011	013	=
0C	012	014	=
0D	013	015	= 12
0E	014	016	=
0F	015	017	=
10	016	020	=
11	017	021	=
12	018	022	=
13	019	023	=
14	020	024	=
15	021	025	= 12
16	022	026	=
17	023	027	=
18	024	030	=
19	025	031	=
1A	026	032	=
1B	027	033	=
1C	028	034	=
1D	029	035	=
1E	030	036	=
1F	031	037	=
20	032	040	= 12
21	033	041	= 08
22	034	042	= 09
23	035	043	= 12
24	036	044	= 12
25	037	045	= 12
26	038	046	= 12
27	039	047	= 08
28	040	050	= 08
29	041	051	= 08
2A	042	052	= 10
2B	043	053	= 10

CHARACTER CODE						SETWIDTH
HEX		DEC		OCT		#/120"
2C	-	044	_	054	=	08
2D	-	045	_	055	=	10
2E	-	046	_	056	=	08
2F	-	047	_	057	=	12
30	-	048	_	060	=	12
31	-	049	_	061	=	12
32	-	050	_	062	=	12
33	-	051	_	063	=	12
34	-	052	_	064	=	12
35	-	053	_	065	=	12
36	-	054	_	066	=	12
37	-	055	_	067	=	12
38	-	056	_	070	=	12
39	-	057	_	071	=	12
3A	-	058	_	072	=	08
3B	-	059	_	073	=	08
3C	-	060	_	074	=	12
3D	-	061	_	075	=	12
3E	-	062	_	076	=	12
3F	-	063	_	077	=	09
40	-	064	_	100	=	12
41	-	065	_	101	=	12
42	-	066	_	102	=	12
43	-	067	_	103	=	12
44	-	068	_	104	=	12
45	-	069	_	105	=	12
46	-	070	_	106	=	12
47	-	071	_	107	=	12
48	-	072	_	110	=	12
49	-	073	_	111	=	08
4A	-	074	_	112	=	12
4B	-	075	_	113	=	12
4C	-	076	_	114	=	12
4D	-	077	_	115	=	12
4E	-	078	_	116	=	12
4F	-	079	_	117	=	12
50	-	080	_	120	=	12
51	-	081	_	121	=	12
52	-	082	_	122	=	12
53	-	083	_	123	=	12
54	-	084	_	124	=	12
55	-	085	_	125	=	12
56	-	086	_	126	=	12
57	-	087	_	127	=	12
58	-	088	_	130	=	12
59	-	089	_	131	=	12
5A	-	090	_	132	=	12
5B	-	091	_	133	=	08
5C	-	092	_	134	=	12

CHARACTER CODE						SETWIDTH
HEX		DEC		OCT		#/120"
5D	-	093	_	135	=	08
5E	-	094	_	136	=	09
5F	-	095	_	137	=	12
60	-	096	_	140	=	08
61	-	097	_	141	=	12
62	-	098	_	142	=	12
63	-	099	_	143	=	12
64	-	100	_	144	=	12
65	-	101	_	145	=	12
66	-	102	_	146	=	10
67	-	103	_	147	=	12
68	-	104	_	150	=	12
69	-	105	_	151	=	08
6A	-	106	_	152	=	09
6B	-	107	_	153	=	12
6C	-	108	_	154	=	09
6D	-	109	_	155	=	12
6E	-	110	_	156	=	12
6F	-	111	_	157	=	12
70	-	112	_	160	=	12
71	-	113	_	161	=	12
72	-	114	_	162	=	12
73	-	115	_	163	=	12
74	-	116	_	164	=	11
75	-	117	_	165	=	12
76	-	118	_	166	=	12
77	-	119	_	167	=	12
78	-	120	_	170	=	12
79	-	121	_	171	=	12
7A	-	122	_	172	=	12
7B	-	123	_	173	=	08
7C	-	124	_	174	=	08
7D	-	125	_	175	=	08
7E	-	126	_	176	=	11
7F	-	127	_	177	=	12
80	-	128	_	200	=	12
81	-	129	_	201	=	12
82	-	130	_	202	=	12
83	-	131	_	203	=	12
84	-	132	_	204	=	12
85	-	133	_	205	=	12
86	-	134	_	206	=	12
87	-	135	_	207	=	12
88	-	136	_	210	=	12
89	-	137	_	211	=	12
8A	-	138	_	212	=	12
8B	-	139	_	213	=	09
8C	-	140	_	214	=	08
8D	-	141	_	215	=	08

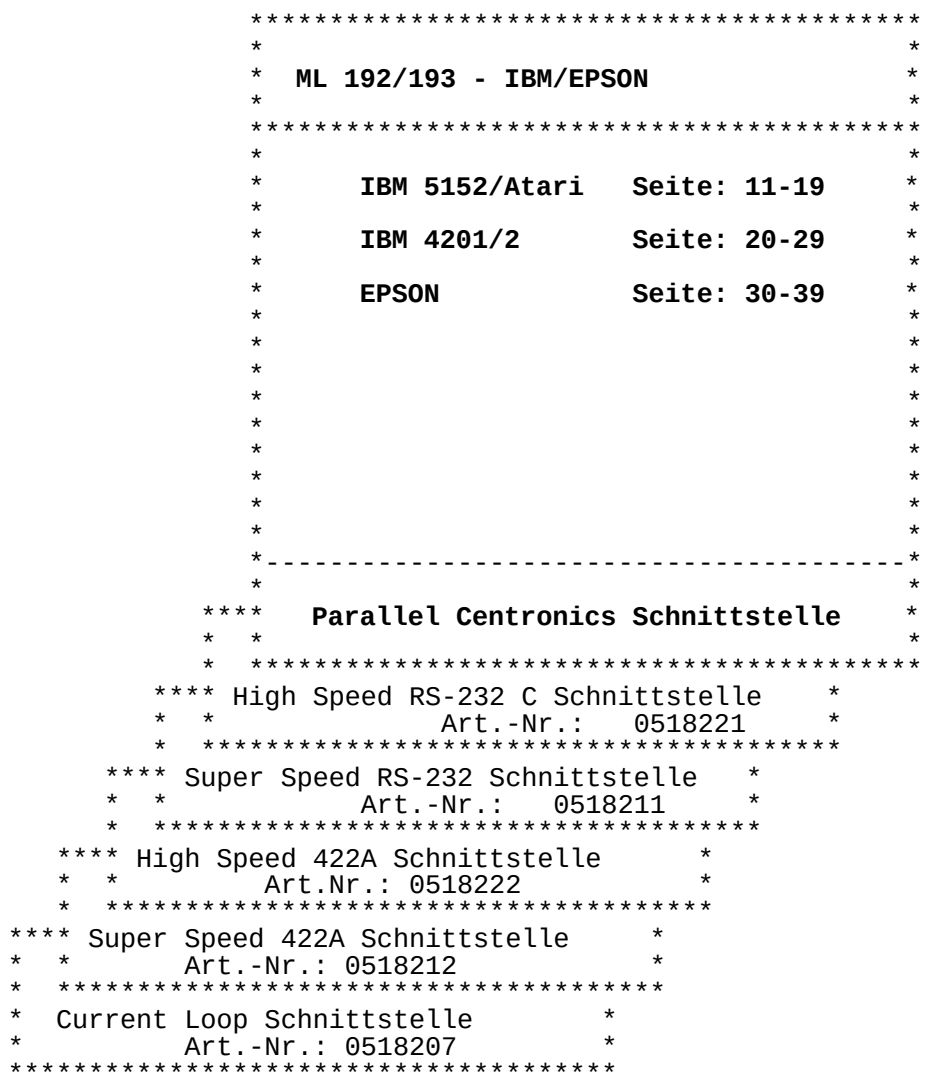
CHARACTER CODE							SETWIDTH
HEX		DEC		OCT			#/120"
8E	-	142	_	216	=		12
8F	-	143	_	217	=		12
90	-	144	_	220	=		12
91	-	145	_	221	=		12
92	-	146	_	222	=		12
93	-	147	_	223	=		12
94	-	148	_	224	=		10
95	-	149	_	225	=		10
96	-	150	_	226	=		12
97	-	151	_	227	=		12
98	-	152	_	230	=		12
99	-	153	_	231	=		12
9A	-	154	_	232	=		12
9B	-	155	_	233	=		10
9C	-	156	_	234	=		12
9D	-	157	_	235	=		12
9E	-	158	_	236	=		12
9F	-	159	_	237	=		11
A0	-	160	_	240	=		12
A1	-	161	_	241	=		08
A2	-	162	_	242	=		12
A3	-	163	_	243	=		12
A4	-	164	_	244	=		12
A5	-	165	_	245	=		12
A6	-	166	_	246	=		12
A7	-	167	_	247	=		12
A8	-	168	_	250	=		09
A9	-	169	_	251	=		12
AA	-	170	_	252	=		12
AB	-	171	_	253	=		12
AC	-	172	_	254	=		12
AD	-	173	_	255	=		08
AE	-	174	_	256	=		12
AF	-	175	_	257	=		12
B0	-	176	_	260	=		12
B1	-	177	_	261	=		12
B2	-	178	_	262	=		12
B3	-	179	_	263	=		12
B4	-	180	_	264	=		12
B5	-	181	_	265	=		12
B6	-	182	_	266	=		12
B7	-	183	_	267	=		12
B8	-	184	_	270	=		12
B9	-	185	_	271	=		12
BA	-	186	_	272	=		12
BB	-	187	_	273	=		12
BC	-	188	_	274	=		12
BD	-	189	_	275	=		12
BE	-	190	_	276	=		12

CHARACTER CODE				SETWIDTH
HEX	DEC	OCT		#/120"
BF	191	277	=	12
C0	192	300	=	12
C1	193	301	=	12
C2	194	302	=	12
C3	195	303	=	12
C4	196	304	=	12
C5	197	305	=	12
C6	198	306	=	12
C7	199	307	=	12
C8	200	310	=	12
C9	201	311	=	12
CA	202	312	=	12
CB	203	313	=	12
CC	204	314	=	12
CD	205	315	=	12
CE	206	316	=	12
CF	207	317	=	12
D0	208	320	=	12
D1	209	321	=	12
D2	210	322	=	12
D3	211	323	=	12
D4	212	324	=	12
D5	213	325	=	12
D6	214	326	=	12
D7	215	327	=	12
D8	216	330	=	12
D9	217	331	=	12
DA	218	332	=	12
DB	219	333	=	12
DC	220	334	=	12
DD	221	335	=	12
DE	222	336	=	12
DF	223	337	=	12
E0	224	340	=	11
E1	225	341	=	12
E2	226	342	=	12
E3	227	343	=	10
E4	228	344	=	12
E5	229	345	=	11
E6	230	346	=	12
E7	231	347	=	12
E8	232	350	=	12
E9	233	351	=	10
EA	234	352	=	12
EB	235	353	=	10
EC	236	354	=	12
ED	237	355	=	12
EE	238	356	=	12
EF	239	357	=	12
F0	240	360	=	10

CHARACTER CODE				SETWIDTH
HEX	DEC		OCT	#/120"
F1	241		361	10
F2	242		362	10
F3	243		363	10
F4	244		364	12
F5	245		365	12
F6	246		366	10
F7	247		367	10
F8	248		370	10
F9	249		371	08
FA	250		372	08
FB	251		373	12
FC	252		374	09
FD	253		375	08
FE	254		376	08
FF	255		377	12

ISO-Tabelle für 190 STD

Position	1	2	3	4	6	7	8	9	11	12	13	14	15	16
Decimal Code	35	38	48	64	91	92	93	94	96	123	124	125	126	36
ASCII ESC ! n														
ASCII (0) 64	12	12	12	12	08	12	08	09	08	08	08	08	11	12
ASCII (O) 65	12	12	12	12	08	12	08	09	08	08	08	08	11	12
BRITISH 66	12	12	12	12	08	12	08	09	08	08	08	08	11	12
GERMAN 67	12	12	12	12	12	12	12	09	08	12	10	12	12	12
FRENCH 68	12	12	12	12	08	12	12	09	08	12	12	12	12	12
SWEDISH 1 69	12	12	12	12	12	12	12	12	12	12	10	12	12	12
DANISH 70	12	12	12	12	12	12	12	12	08	12	12	12	12	12
NORWEGIAN 71	12	12	12	12	12	12	12	09	08	12	12	12	11	12
DUTCH 72	12	12	12	12	08	12	08	09	08	08	12	08	11	12
ITALIAN 73	12	12	12	12	08	12	12	09	12	12	10	12	08	12
TRS-80 74	12	12	12	12	12	12	12	12	08	08	08	08	12	12
SPANISH 75	08	12	12	08	12	12	09	12	12	12	08	12	12	12
SWEDISH 2 76	12	12	12	12	12	12	12	12	12	12	10	12	12	12
SWEDISH 3 77	12	12	12	12	12	12	12	12	12	12	10	12	12	12
SWEDISH 4 78	12	12	12	12	12	12	12	09	12	12	10	12	12	12


ML 192/193 - IBM/EPSON
IBM 5152/Atari Seite: 11-19
IBM 4201/2 Seite: 20-29
EPSON Seite: 30-39
Parallel Centronics Schnittstelle
High Speed RS-232 C Schnittstelle
Art.-Nr.: 0518221
Super Speed RS-232 Schnittstelle
Art.-Nr.: 0518211
High Speed 422A Schnittstelle
Art.Nr.: 0518222
Super Speed 422A Schnittstelle
Art.-Nr.: 0518212
Current Loop Schnittstelle
Art.-Nr.: 0518207

```
*****************************************
*  ML 192/193 I/E                       *
*  IBM 5152 Emulation      Seite: 11-19  *
*                                       *
*****************************************
*                                       *
*  kompatibel mit:                      *
*                                       *
*  ML 182/183 - IBM 5152                *
*                                       *
*  ML  92/93  - IBM 5152                *
*                                       *
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*                                       *
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FUNCTION	COMMENT	ASCII	HEXADECIMAL
CHARACTER SET			
IBM CHARACTER SET I		ESC 7	1B 37
IBM CHARACTER SET II		ESC 6	1B 36
NATIONAL CHARACTER SET		ESC ! n	1B 21 n
CUT SHEET FEEDER			
CSF EJECT		ESC ?	1B 3F
CSF INSERT		ESC.SEMICOLON	1B 3B
DOWNLINE LOADABLE CHR.GEN			
COPY STD SET TO DLL CG		ESC $	1B 24
DESIGNATES DLL QUASI-NLQ		ESC % Z	1B 25 5A
DESIGNATES DLL UM CHR.SET		ESC % Y	1B 25 59
EXIT DLL		ESC I 1 OR ESC I 3	1B 49 31 1B 49 33
LOAD DLL DESCENDER (UM)		ESC % D m n1-n11	1B 25 44 m n1-n11
EXECUTION			
CARRIAGE RETURN		CR	0D
CLEAR BUFFER		CAN	18
FORM FEED		FF	0C
HOME HEAD COMMAND	UNIDIR FOR 1 LINE	ESC <	1B 3C
LINE FEED		LF	0A
VAR. LINE FEED n/216"	ONE LINE ONLY	ESC J n	1B 4A n
FORMATTING			
FORM LENGTH BY INCHES	ALSO SETS TOF	ESC C NUL n	1B 43 00 n
FORM LENGTH BY LINES	ALSO SETS TOF	ESC C n	1B 43 n
HORIZONTAL TABULATOR	EVERY 8 CHARS.	HT	09
HTABS CLEAR		ESC D NUL	1B 44 00
HTABS SET BY CHARACTERS		ESC D n1-nk NUL	1B 44 n1-nk 00
INDENTING	PRINT POS. BY DOT	ESC % B.n1-n4	1B 25 42 n1-n4
MARGIN SET	BY CHARACTER COLUMNS	ESC X n1 n2	1B 58 n1 n2
SKIP OVER PERFORATION	BY LINES	ESC N n	1B 4E n
SKIP OVER PERFORATION OFF		ESC O	1B 4F
VERTICAL TABULATOR SKIP	SAME AS LF	VT	0B
GRAPHICS, BIT IMAGE			
DENSITY DOUBLE	120 * 72 DPI	ESC Y n1 n2	1B 59 n1 n2
DENSITY DOUBLE HALF SPEED	120 * 72 DPI	ESC L n1 n2	1B 4C n1 n2
DENSITY QUADRUPLE	240 * 72 DPI	ESC Z n1 n2	1B 5A n1 n2
DENSITY SINGLE	60 * 72 DPI	ESC K n1 n2	1B 4B n1 n2
LINE SPACING			

6 LPI	WITHOUT PREV. ESC An	ESC 2	1B 32
8 LPI		ESC 0	1B 30
ACTIVATE ESC A n SPACING		ESC 2	1B 32
LINE SPACING 7/72"	FOR 7 BIT GRAPHICS	ESC 1	1B 31
VAR. LINE SPACING n/216"		ESC 3 n	1B 33 n
VAR. LINE SPACING n/72"	ESC.2 MUST FOLLOW !!	ESC A n	1B 41 n

FUNCTION	COMMENT	ASCII	HEXADECIMAL
MISCELLANEOUS			
PAPER OUT SENSOR OFF		ESC 8	1B 38
PAPER OUT SENSOR ON		ESC 9	1B 39
PRINT BIDIRECTIONAL		ESC U 0	1B 55 30
PRINT UNIDIRECTIONAL		ESC U 1	1B 55 31
PRINT MODE			
10 CPI	PICA	DC2	12
12 CPI	ELITE	ESC :	1B 3A
17 CPI	FINE	SI	0F
DESIGNATES ENHANCED MODE		ESC I 2	1B 49 32
DESIGNATES HSD MODE		ESC # 0	1B 23 30
DESIGNATES NLQ MODE	NEAR LETTER QUALITY	ESC I 3	1B 49 33
DESIGNATES UTILITY MODE	UTILITY MODE	ESC I 1	1B 49 31
EMPHASIZED OFF		ESC F	1B 46
EMPHASIZED ON		ESC E	1B 45
ENHANCED OFF	DOUBLE STRIKE	ESC H	1B 48
ENHANCED ON	DOUBLE STRIKE	ESC G	1B 47
ITALICS (SLANT) OFF		ESC % H	1B 25 48
ITALICS (SLANT) ON		ESC % G	1B 25 47
PROPORTIONAL SPACING OFF		ESC % Q	1B 25 51
PROPORTIONAL SPACING ON		ESC % P	1B 25 50
SPACE BEETWEEN CHARACTERS		ESC V n	1B 56 n
SUBSCRIPT OFF	ALSO SUPERSCRIPT OFF	ESC T	1B 54
SUBSCRIPT ON	SOH OR ANY ODD NO.	ESC S 1	1B 53 31
SUPERSCRIPT OFF	ALSO SUBSCRIPT OFF	ESC T	1B 54
SUPERSCRIPT ON	NUL OR ANY EVEN NO.	ESC S 0	1B 53 30
UNDERLINE OFF	UNDERSCORE	ESC - 0	1B 2D 30
UNDERLINE ON	UNDERSCORE	ESC - 1	1B 2D 31
WIDTH DOUBLE	FOR ONE LINE ONLY	SO	0E
WIDTH DOUBLE OFF		ESC W 0	1B 57 30
WIDTH DOUBLE OFF	BEFORE END OF LINE	DC4	14
WIDTH DOUBLE ON		ESC W 1	1B 57 31

Note: Die Besonderheit der Atari-Version liegt darin, daß im IBM-Characterset II der Character 158 '£'ersetzt wurde durch den deutschen Character sz = 'ß'.

I. Proportional characters: Width Table Firmware:

Identisch mit ML-Standard, da IBM 5152 keine Proportionalschrift kennt.

Proportional Spacing : (ESC %P - ON, ESC %Q - OFF)

CHARACTER CODE			SETWIDTH
HEX	DEC	OCT	#/120"
00	000	000	=
01	001	001	=
02	002	002	=
03	003	003	= 12
04	004	004	= 12
05	005	005	= 12
06	006	006	= 12
07	007	007	=
08	008	010	=
09	009	011	=
0A	010	012	=
0B	011	013	=
0C	012	014	=
0D	013	015	= 12
0E	014	016	=
0F	015	017	=
10	016	020	=
11	017	021	=
12	018	022	=
13	019	023	=
14	020	024	=
15	021	025	= 12
16	022	026	=
17	023	027	=
18	024	030	=
19	025	031	=
1A	026	032	=
1B	027	033	=
1C	028	034	=
1D	029	035	=
1E	030	036	=
1F	031	037	=
20	032	040	= 12
21	033	041	= 08
22	034	042	= 09
23	035	043	= 12
24	036	044	= 12
25	037	045	= 12
26	038	046	= 12
27	039	047	= 08
28	040	050	= 08
29	041	051	= 08

CHARACTER CODE							SETWIDTH
HEX		DEC		OCT			#/120"
2A	-	042	_	052	=		10
2B	-	043	_	053	=		10
2C	-	044	_	054	=		08
2D	-	045	_	055	=		10
2E	-	046	_	056	=		08
2F	-	047	_	057	=		12
30	-	048	_	060	=		12
31	-	049	_	061	=		12
32	-	050	_	062	=		12
33	-	051	_	063	=		12
34	-	052	_	064	=		12
35	-	053	_	065	=		12
36	-	054	_	066	=		12
37	-	055	_	067	=		12
38	-	056	_	070	=		12
39	-	057	_	071	=		12
3A	-	058	_	072	=		08
3B	-	059	_	073	=		08
3C	-	060	_	074	=		12
3D	-	061	_	075	=		12
3E	-	062	_	076	=		12
3F	-	063	_	077	=		09
40	-	064	_	100	=		12
41	-	065	_	101	=		12
42	-	066	_	102	=		12
43	-	067	_	103	=		12
44	-	068	_	104	=		12
45	-	069	_	105	=		12
46	-	070	_	106	=		12
47	-	071	_	107	=		12
48	-	072	_	110	=		12
49	-	073	_	111	=		08
4A	-	074	_	112	=		12
4B	-	075	_	113	=		12
4C	-	076	_	114	=		12
4D	-	077	_	115	=		12
4E	-	078	_	116	=		12
4F	-	079	_	117	=		12
50	-	080	_	120	=		12
51	-	081	_	121	=		12
52	-	082	_	122	=		12
53	-	083	_	123	=		12
54	-	084	_	124	=		12
55	-	085	_	125	=		12
56	-	086	_	126	=		12
57	-	087	_	127	=		12
58	-	088	_	130	=		12
59	-	089	_	131	=		12
5A	-	090	_	132	=		12

CHARACTER CODE						SETWIDTH
HEX		DEC		OCT		#/120"
5B	-	091	_	133	=	08
5C	-	092	_	134	=	12
5D	-	093	_	135	=	08
5E	-	094	_	136	=	09
5F	-	095	_	137	=	12
60	-	096	_	140	=	08
61	-	097	_	141	=	12
62	-	098	_	142	=	12
63	-	099	_	143	=	12
64	-	100	_	144	=	12
65	-	101	_	145	=	12
66	-	102	_	146	=	10
67	-	103	_	147	=	12
68	-	104	_	150	=	12
69	-	105	_	151	=	08
6A	-	106	_	152	=	09,5
6B	-	107	_	153	=	12
6C	-	108	_	154	=	09
6D	-	109	_	155	=	12
6E	-	110	_	156	=	12
6F	-	111	_	157	=	12
70	-	112	_	160	=	12
71	-	113	_	161	=	12
72	-	114	_	162	=	12
73	-	115	_	163	=	12
74	-	116	_	164	=	11,5
75	-	117	_	165	=	12
76	-	118	_	166	=	12
77	-	119	_	167	=	12
78	-	120	_	170	=	12
79	-	121	_	171	=	12
7A	-	122	_	172	=	12
7B	-	123	_	173	=	08
7C	-	124	_	174	=	08
7D	-	125	_	175	=	08
7E	-	126	_	176	=	11
7F	-	127	_	177	=	12
80	-	128	_	200	=	12
81	-	129	_	201	=	12
82	-	130	_	202	=	12
83	-	131	_	203	=	12
84	-	132	_	204	=	12
85	-	133	_	205	=	12
86	-	134	_	206	=	12
87	-	135	_	207	=	12
88	-	136	_	210	=	12
89	-	137	_	211	=	12
8A	-	138	_	212	=	12
8B	-	139	_	213	=	09

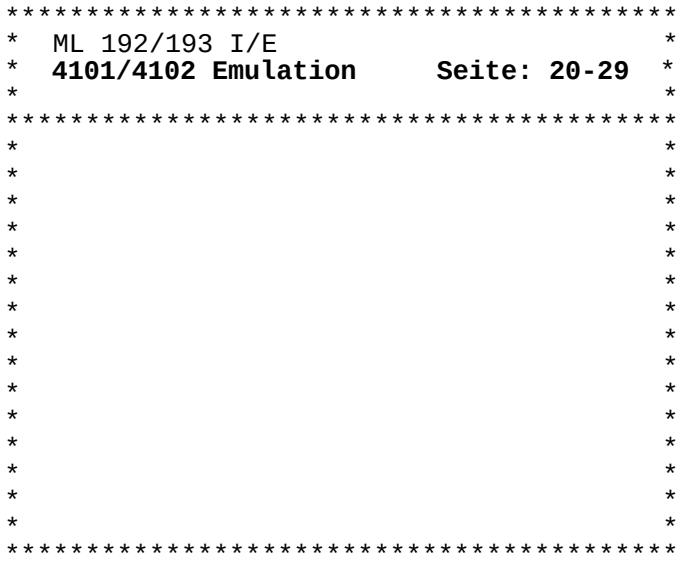
CHARACTER CODE					SETWIDTH
HEX		DEC		OCT	#/120"
8C	-	140	_	214	= 08
8D	-	141	_	215	= 08
8E	-	142	_	216	= 12
8F	-	143	_	217	= 12
90	-	144	_	220	= 12
91	-	145	_	221	= 12
92	-	146	_	222	= 12
93	-	147	_	223	= 12
94	-	148	_	224	= 10
95	-	149	_	225	= 10
96	-	150	_	226	= 12
97	-	151	_	227	= 12
98	-	152	_	230	= 12
99	-	153	_	231	= 12
9A	-	154	_	232	= 12
9B	-	155	_	233	= 10
9C	-	156	_	234	= 12
9D	-	157	_	235	= 12
9E	-	158	_	236	= 12
9F	-	159	_	237	= 11
A0	-	160	_	240	= 12
A1	-	161	_	241	= 08
A2	-	162	_	242	= 12
A3	-	163	_	243	= 12
A4	-	164	_	244	= 12
A5	-	165	_	245	= 12
A6	-	166	_	246	= 12
A7	-	167	_	247	= 12
A8	-	168	_	250	= 09
A9	-	169	_	251	= 12
AA	-	170	_	252	= 12
AB	-	171	_	253	= 12
AC	-	172	_	254	= 12
AD	-	173	_	255	= 08
AE	-	174	_	256	= 12
AF	-	175	_	257	= 12
B0	-	176	_	260	= 12
B1	-	177	_	261	= 12
B2	-	178	_	262	= 12
B3	-	179	_	263	= 12
B4	-	180	_	264	= 12
B5	-	181	_	265	= 12
B6	-	182	_	266	= 12
B7	-	183	_	267	= 12
B8	-	184	_	270	= 12
B9	-	185	_	271	= 12
BA	-	186	_	272	= 12
BB	-	187	_	273	= 12
BC	-	188	_	274	= 12

CHARACTER CODE			SETWIDTH
HEX	DEC	OCT	#/120"
BD	189	275	12
BE	190	276	12
BF	191	277	12
C0	192	300	12
C1	193	301	12
C2	194	302	12
C3	195	303	12
C4	196	304	12
C5	197	305	12
C6	198	306	12
C7	199	307	12
C8	200	310	12
C9	201	311	12
CA	202	312	12
CB	203	313	12
CC	204	314	12
CD	205	315	12
CE	206	316	12
CF	207	317	12
D0	208	320	12
D1	209	321	12
D2	210	322	12
D3	211	323	12
D4	212	324	12
D5	213	325	12
D6	214	326	12
D7	215	327	12
D8	216	330	12
D9	217	331	12
DA	218	332	12
DB	219	333	12
DC	220	334	12
DD	221	335	12
DE	222	336	12
DF	223	337	12
E0	224	340	11
E1	225	341	12
E2	226	342	12
E3	227	343	10
E4	228	344	12
E5	229	345	11
E6	230	346	12
E7	231	347	12
E8	232	350	12
E9	233	351	10
EA	234	352	12
EB	235	353	10
EC	236	354	12
ED	237	355	12

CHARACTER CODE					SETWIDTH
HEX		DEC	OCT		#/120"
EE	-	238	356	=	12
EF	-	239	357	=	12
F0	-	240	360	=	10
F1	-	241	361	=	10
F2	-	242	362	=	10
F3	-	243	363	=	10
F4	-	244	364	=	12
F5	-	245	365	=	12
F6	-	246	366	=	10
F7	-	247	367	=	10
F8	-	248	370	=	10
F9	-	249	371	=	08
FA	-	250	372	=	08
FB	-	251	373	=	12
FC	-	252	374	=	09
FD	-	253	375	=	08
FE	-	254	376	=	08
FF	-	255	377	=	12

ISO-Tabelle für 190 IBM-Graphicsprinter (ESC !n)

Position	1	2	3	4	6	7	8	9	11	12	13	14	15	16
Decimal Code	35	38	48	64	91	92	93	94	96	123	124	125	126	36
ASCII ESC ! n														
ASCII (0) 64	12	12	12	12	08	12	08	09	08	08	08	08	11	12
ASCII (O) 65	12	12	12	12	08	12	08	09	08	08	08	08	11	12
BRITISH 66	12	12	12	12	08	12	08	09	08	08	08	08	11	12
GERMAN 67	12	12	12	12	12	12	12	09	08	12	10	12	12	12
FRENCH 68	12	12	12	12	08	12	12	09	08	12	12	12	12	12
SWEDISH 1 69	12	12	12	12	12	12	12	12	12	12	10	12	12	12
DANISH 70	12	12	12	12	12	12	12	12	08	12	12	12	12	12
NORWEGIAN 71	12	12	12	12	12	12	12	09	08	12	12	12	11	12
DUTCH 72	12	12	12	12	08	12	08	09	08	08	12	08	11	12
ITALIAN 73	12	12	12	12	08	12	12	09	12	12	10	12	08	12
TRS-80 74	12	12	12	12	12	12	12	12	08	08	08	08	12	12
SPANISH 75	08	12	12	08	12	12	09	12	12	12	08	12	12	12
SWEDISH 2 76	12	12	12	12	12	12	12	12	12	12	10	12	12	12
SWEDISH 3 77	12	12	12	12	12	12	12	12	12	12	10	12	12	12
SWEDISH 4 78	12	12	12	12	12	12	12	09	12	12	10	12	12	12


ML 192/193 I/E
4101/4102 Emulation
Seite: 20-29

FUNCTION	COMMENT	ASCII	HEXADECIMAL
CHARACTER SET			
IBM CHARACTER SET I		ESC 7	1B 37
IBM CHARACTER SET II		ESC 6	1B 36
NATIONAL CHARACTER SET		ESC ! n	1B 21 n
PRINT FROM ALL CHAR. SET	ONE CHARACTER ONLY	ESC ^	1B 5E
PRINT FROM ALL CHAR. SET	CONTINUOUSLY	ESC \ n1 n2	1B 5C n1 n2
CUT SHEET FEEDER			
CSF EJECT		ESC ?	1B 3F
CSF INSERT		ESC.SEMICOLON	1B 3B
DOWNLINE LOADABLE CHR.GEN			
DESIGNATE DLL NLQ MODE		ESC I 6	1B 49 36
DESIGNATE DLL UTILITYMODE		ESC I 4	1B 49 34
EXIT DLL	START UTILITY MODE	ESC I 0	1B 49 30
EXIT DLL	START NLQ MODE	ESC I 2	1B 49 32
LOAD PPR DLL CG		ESC = n1 n2 DC4...	1B 3D n1 n2 14..
EXECUTION			
BACKSPACE		BS	08
CARRIAGE RETURN		CR	0D
CLEAR BUFFER		CAN	18
FORM FEED		FF	0C
LINE FEED		LF	0A
LINE FEED, REVERSE		ESC]	1B 5D
PRINT SUPPRESS OFF		DC1	11
PRINT SUPPRESS ON (ML192)	NO PRINT UNTIL "DC1"	ESC Q ETX	1B 51 03
PRINT SUPPRESS ON (ML193)	NO PRINT UNTIL "DC1"	ESC Q SYN	1B 51 16
VAR. LINE FEED n/216"	ONE LINE ONLY	ESC J n	1B 4A n
FORMATTING			
CANCEL VTABS,SET HTABS 8.		ESC R	1B 52
FORM LENGTH BY INCHES	ALSO SETS TOF	ESC C NUL n	1B 43 00 n
FORM LENGTH BY LINES	ALSO SETS TOF	ESC C n	1B 43 n
HORIZONTAL TABULATOR		HT	09
HTABS CLEAR		ESC D NUL	1B 44 00
HTABS SET BY CHARACTERS		ESC D n1-nk NUL	1B 44 n1-nk 00
INDENTING	PRINT POS. BY DOT	ESC % B.n1-n4	1B 25 42 n1-n4
MARGIN SET	BY CHARACTER COLUMNS	ESC X n1 n2	1B 58 n1 n2
SKIP OVER PERFORATION	BY LINES	ESC N n	1B 4E n
SKIP OVER PERFORATION OFF		ESC O	1B 4F
TOF SET		ESC 4	1B 34
VERTICAL TABULATOR CLEAR		ESC B NUL	1B 42 00
VERTICAL TABULATOR SET		ESC B n1...n64 NUL	1B 42 n1...n64 00
VERTICAL TABULATOR SKIP	SAME AS LF IF NO TAB	VT	0B
GRAPHICS, BIT IMAGE			

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DENSITY DOUBLE	120 * 72 DPI	ESC Y n1 n2	1B 59 n1 n2
DENSITY DOUBLE HALF SPEED	120 * 72 DPI	ESC L n1 n2	1B 4C n1 n2
DENSITY QUADRUPLE	240 * 72 DPI	ESC Z n1 n2	1B 5A n1 n2
DENSITY SINGLE	60 * 72 DPI	ESC K n1 n2	1B 4B n1 n2

LINE SPACING
============

6 LPI	WITHOUT PREV. ESC An	ESC 2	1B 32
8 LPI		ESC 0	1B 30
ACTIVATE ESC A n SPACING		ESC 2	1B 32
LINE SPACING 7/72"	FOR 7 BIT GRAPHICS	ESC 1	1B 31
VAR. LINE SPACING n/216"		ESC 3 n	1B 33 n
VAR. LINE SPACING n/72"	ESC.2 MUST FOLLOW !!	ESC A n	1B 41 n

FUNCTION	COMMENT	ASCII	HEXADECIMAL
MISCELLANEOUS			
AUTO LF OFF		ESC 5 0	1B 35 30
AUTO LF ON		ESC 5 1	1B 35 31
PAPER OUT SENSOR OFF		ESC 8	1B 38
PAPER OUT SENSOR ON		ESC 9	1B 39
PRINT BIDIRECTIONAL		ESC U 0	1B 55 30
PRINT UNIDIRECTIONAL		ESC U 1	1B 55 31
PRINT MODE			
10 CPI	PICA	DC2	12
12 CPI	ELITE	ESC :	1B 3A
17 CPI	FINE	SI	0F
DESIGNATES HSD MODE		ESC # 0	1B 23 30
DESIGNATES NLQ MODE		ESC I 2	1B 49 32
DESIGNATES UTILITY MODE		ESC I 0	1B 49 30
DOUBLE HEIGHT CHARACTERS	ALSO DOUBLE WIDTH	ESC [@ n1 n2 m1...	1B 5B 40 n1 n2 m1.
EMPHASIZED OFF		ESC F	1B 46
EMPHASIZED ON		ESC E	1B 45
ITALICS (SLANT) OFF		ESC % H	1B 25 48
ITALICS (SLANT) ON		ESC % G	1B 25 47
NLQ MODE START		ESC G	1B 47
NLQ MODE STOP		ESC H	1B 48
OVERSCORE OFF		ESC _ 0	1B 5F 30
OVERSCORE ON		ESC _ 1	1B 5F 31
PROPORTIONAL SPACING OFF		ESC P 0	1B 50 30
PROPORTIONAL SPACING ON		ESC P 1	1B 50 31
SELECT TYPESTYLE CART/RES		ESC k n	1B 68 n
SPACE BEETWEEN CHARACTERS		ESC V n	1B 56 n
SUBSCRIPT OFF	ALSO SUPERSCRIPT OFF	ESC T	1B 54
SUBSCRIPT ON	SOH OR ANY ODD NO.	ESC S 1	1B 53 31
SUPERSCRIPT OFF	ALSO SUBSCRIPT OFF	ESC T	1B 54
SUPERSCRIPT ON	NUL OR ANY EVEN NO.	ESC S 0	1B 53 30
UNDERLINE OFF	UNDERSCORE	ESC - 0	1B 2D 30
UNDERLINE ON	UNDERSCORE	ESC - 1	1B 2D 31
WIDTH DOUBLE	FOR ONE LINE ONLY	SO	0E
WIDTH DOUBLE OFF		ESC W 0	1B 57 30
WIDTH DOUBLE OFF	BEFORE END OF LINE	DC4	14
WIDTH DOUBLE ON		ESC W 1	1B 57 31

NORMAL PROPORTIONAL
NLQ & NLQ SUP/SUB

ML 192/193 IBM Emulation (IBM Proprinter II and Proprinter XL)
NLQ & NLQ Sup/Sub
(not IBM Proprinter X24/XL24 compatible !)

I. Proportional characters: Width Table Firmware:

Proportional Spacing : (ESC P0 - ON, ESC P1 - OFF)
NLQ Mode : (ESC G - ON, ESC H - OFF)
Superscript : (ESC S0 - ON, ESC T - OFF)
Subscript : (ESC S1 - ON, ESC T - OFF)

Size = #/120 inch or (#*3/360 inch)

OKI
ML192/193

CHARACTER CODE				SETWIDTH
HEX	DEC	OCT		#/120"
00	000	000	=	12
01	001	001	=	12
02	002	002	=	12
03	003	003	=	12
04	004	004	=	10
05	005	005	=	12
06	006	006	=	12
07	007	007	=	12
08	008	010	=	12
09	009	011	=	12
0A	010	012	=	12
0B	011	013	=	12
0C	012	014	=	12
0D	013	015	=	12
0E	014	016	=	12
0F	015	017	=	12
10	016	020	=	12
11	017	021	=	12
12	018	022	=	12
13	019	023	=	12
14	020	024	=	12
15	021	025	=	12
16	022	026	=	12
17	023	027	=	12
18	024	030	=	12
19	025	031	=	12

CHARACTER CODE				SETWIDTH
HEX	DEC	OCT		#/120"
1A	026	032	=	12
1B	027	033	=	12
1C	028	034	=	12
1D	029	035	=	12
1E	030	036	=	12
1F	031	037	=	12
20	032	040	=	12
21	033	041	=	05
22	034	042	=	08
23	035	043	=	12
24	036	044	=	12
25	037	045	=	12
26	038	046	=	12
27	039	047	=	06
28	040	050	=	06
29	041	051	=	06
2A	042	052	=	12
2B	043	053	=	12
2C	044	054	=	06
2D	045	055	=	12
2E	046	056	=	06
2F	047	057	=	10
30	048	060	=	12
31	049	061	=	08
32	050	062	=	12
33	051	063	=	12
34	052	064	=	12
35	053	065	=	12
36	054	066	=	12
37	055	067	=	12
38	056	070	=	12
39	057	071	=	12
3A	058	072	=	06
3B	059	073	=	06
3C	060	074	=	10
3D	061	075	=	12
3E	062	076	=	10
3F	063	077	=	10
40	064	100	=	12
41	065	101	=	12
42	066	102	=	12
43	067	103	=	12
44	068	104	=	12
45	069	105	=	12
46	070	106	=	12
47	071	107	=	12
48	072	110	=	12
49	073	111	=	08

CHARACTER CODE				SETWIDTH
HEX	DEC	OCT		#/120"
4A	074	112	=	12
4B	075	113	=	12
4C	076	114	=	12
4D	077	115	=	12
4E	078	116	=	12
4F	079	117	=	12
50	080	120	=	12
51	081	121	=	12
52	082	122	=	12
53	083	123	=	12
54	084	124	=	12
55	085	125	=	12
56	086	126	=	12
57	087	127	=	12
58	088	130	=	10
59	089	131	=	12
5A	090	132	=	12
5B	091	133	=	08
5C	092	134	=	10
5D	093	135	=	08
5E	094	136	=	12
5F	095	137	=	12
60	096	140	=	06
61	097	141	=	12
62	098	142	=	11
63	099	143	=	11
64	100	144	=	11
65	101	145	=	12
66	102	146	=	12
67	103	147	=	11
68	104	150	=	12
69	105	151	=	08
6A	106	152	=	08
6B	107	153	=	10
6C	108	154	=	08
6D	109	155	=	12
6E	110	156	=	12
6F	111	157	=	11
70	112	160	=	11
71	113	161	=	11
72	114	162	=	11
73	115	163	=	12
74	116	164	=	10
75	117	165	=	12
76	118	166	=	12
77	119	167	=	12
78	120	170	=	10
79	121	171	=	12
7A	122	172	=	10

CHARACTER CODE				SETWIDTH
HEX	DEC	OCT		#/120"
7B	123	173	=	09
7C	124	174	=	04
7D	125	175	=	09
7E	126	176	=	12
7F	127	177	=	12
80	128	200	=	12
81	129	201	=	12
82	130	202	=	12
83	131	203	=	12
84	132	204	=	12
85	133	205	=	12
86	134	206	=	12
87	135	207	=	12
88	136	210	=	12
89	137	211	=	12
8A	138	212	=	12
8B	139	213	=	09
8C	140	214	=	10
8D	141	215	=	08
8E	142	216	=	12
8F	143	217	=	12
90	144	220	=	12
91	145	221	=	12
92	146	222	=	12
93	147	223	=	11
94	148	224	=	11
95	149	225	=	11
96	150	226	=	12
97	151	227	=	12
98	152	230	=	11
99	153	231	=	11
9A	154	232	=	12
9B	155	233	=	12
9C	156	234	=	12
9D	157	235	=	12
9E	158	236	=	12
9F	159	237	=	12
A0	160	240	=	12
A1	161	241	=	12
A2	162	242	=	12
A3	163	243	=	12
A4	164	244	=	12
A5	165	245	=	12
A6	166	246	=	12
A7	167	247	=	12
A8	168	250	=	12
A9	169	251	=	12
AA	170	252	=	12
AB	171	253	=	12

CHARACTER CODE								SETWIDTH
HEX		DEC		OCT				#/120"
AC	-	172	_	254		=		12
AD	-	173	_	255		=		12
AE	-	174	_	256		=		12
AF	-	175	_	257		=		12
B0	-	176	_	260		=		12
B1	-	177	_	261		=		12
B2	-	178	_	262		=		12
B3	-	179	_	263		=		12
B4	-	180	_	264		=		12
B5	-	181	_	265		=		12
B6	-	182	_	266		=		12
B7	-	183	_	267		=		12
B8	-	184	-	270		=		12
B9	-	185	-	271		=		12
BA	-	186	-	272		=		12
BB	-	187	-	273		=		12
BC	-	188	-	274		=		12
BD	-	189	-	275		=		12
BE	-	190	-	276		=		12
BF	-	191	-	277		=		12
C0	-	192	-	300		=		12
C1	-	193	-	301		=		12
C2	-	194	-	302		=		12
C3	-	195	-	303		=		12
C4	-	196	-	304		=		12
C5	-	197	-	305		=		12
C6	-	198	-	306		=		12
C7	-	199	-	307		=		12
C8	-	200	-	310		=		12
C9	-	201	-	311		=		12
CA	-	202	-	312		=		12
CB	-	203	-	313		=		12
CC	-	204	-	314		=		12
CD	-	205	-	315		=		12
CE	-	206	-	316		=		12
CF	-	207	-	317		=		12
D0	-	208	-	320		=		12
D1	-	209	-	321		=		12
D2	-	210	-	322		=		12
D3	-	211	-	323		=		12
D4	-	212	-	324		=		12
D5	-	213	-	325		=		12
D6	-	214	-	326		=		12
D7	-	215	-	327		=		12
D8	-	216	-	330		=		12
D9	-	217	-	331		=		12
DA	-	218	-	332		=		12
DB	-	219	-	333		=		12

CHARACTER CODE							SETWIDTH
HEX		DEC		OCT			#/120"
DC	-	220	-	334	=		12
DD	-	221	-	335	=		12
DE	-	222	-	336	=		12
DF	-	223	-	337	=		12
E0	-	224	-	340	=		12
EB	-	235	-	353	=		12
E1	-	225	-	341	=		12
E2	-	226	-	342	=		11
E3	-	227	-	343	=		12
E4	-	228	-	344	=		12
E5	-	229	-	345	=		12
E6	-	230	-	346	=		12
E7	-	231	-	347	=		11
E8	-	232	-	350	=		12
E9	-	233	-	351	=		12
EA	-	234	-	352	=		12
EC	-	236	-	354	=		12
ED	-	237	-	355	=		12
EE	-	238	-	356	=		10
EF	-	239	-	357	=		12
F0	-	240	-	360	=		12
F1	-	241	-	361	=		12
F2	-	242	-	362	=		10
F3	-	243	-	363	=		10
F4	-	244	-	364	=		12
F5	-	245	-	365	=		12
F6	-	246	-	366	=		12
F7	-	247	-	367	=		11
F8	-	248	-	370	=		08
F9	-	249	-	371	=		06
FA	-	250	-	372	=		06
FB	-	251	-	373	=		12
FC	-	252	-	374	=		10
FD	-	253	-	375	=		08
FE	-	254	-	376	=		08
FF	-	255	-	377	=		12

ISO-Tabelle für 190 IBM-Proprinter (ESC !n)

Position	1	2	3	4	6	7	8	9	10	11	12	13	14	15	16
Decimal Code	35	38	48	64	91	92	93	94	95	96	123	124	125	126	36
ASCII ESC ! n															
ASCII (0) 64	12	12	12	12	08	10	08	12	12	06	09	04	09	12	12
ASCII (O) 65	12	12	12	12	08	10	08	12	12	06	09	04	09	12	12
BRITISH 66	12	12	12	12	08	10	08	12	12	06	09	04	09	12	12
GERMAN 67	12	12	12	12	12	11	12	12	12	06	12	11	12	12	12
FRENCH 68	12	12	12	12	08	12	12	12	12	06	12	12	12	12	12
SWEDISH 1 69	12	12	12	12	12	11	12	12	12	12	12	11	12	12	12
DANISH 70	12	12	12	12	12	12	12	12	12	06	12	12	12	12	12
NORWEGIAN 71	12	12	12	12	12	12	12	12	12	08	12	12	12	12	12
DUTCH 72	12	12	12	12	08	12	08	12	12	06	09	11	09	12	12
ITALIAN 73	12	12	12	12	08	12	12	12	12	12	12	11	12	08	12
FRENCH-CANADA 74	12	12	12	12	12	12	12	10	09	11	12	12	12	12	12
SPANISH 75	05	12	12	08	12	12	12	12	12	12	12	12	12	12	12
SWEDISH 2 76	12	12	12	12	12	11	12	12	12	12	12	11	12	12	12
SWEDISH 3 77	12	12	12	12	12	11	12	12	12	12	12	11	12	12	12
SWEDISH 4 78	12	12	12	12	12	11	12	12	12	12	12	11	12	12	12

```
*****************************************
*  ML 192/193 I/E                       *
*  EPSON Emulation        Seite: 30-39  *
*                                       *
*****************************************
*                                       *
*  kompatibel mit:                      *
*                                       *
*  Epson EX                             *
*                                       *
*  Epson JX                             *
*                                       *
*  Epson FX                             *
*                                       *
*  Epson LX                             *
*                                       *
*  Epson RX                             *
*                                       *
*  Epson MX                             *
*                                       *
*****************************************
```

FUNCTION	COMMENT	ASCII	HEXADECIMAL
CHARACTER SET			
CODE EXPANSION OFF	128-159+255 CONTROLS	ESC 7	1B 37
CODE EXPANSION ON	128-159+255 PRINTABL	ESC 6	1B 36
NATIONAL CHARACTER SET		ESC R n	1B 52 n
UNASSIGNED CODE PRINT OFF	0-31+128-159 CONTROL	ESC I 0	1B 49 30
UNASSIGNED CODE PRINT ON	0-31+128-159PRINTABL	ESC I 1	1B 49 31
COMPOSITE COMMANDS			
PRINT MODE SELECTION		ESC ! n	1B 21 n
CUT SHEET FEEDER			
CSF EJECT		ESC EM ETX	1B 19 03
CSF INSERT		ESC EM STX	1B 19 02
DOWNLINE LOADABLE CHR.GEN			
COPY STD SET TO DLL CG		ESC : NUL NUL NUL	1B 3A 00 00 00
DESIGNATES DLL CHR.SET		ESC % SOH NUL	1B 25 01 00
EXIT DLL	TO DP-MODE	ESC % NUL NUL	1B 25 00 00
LOAD DLL CHARACTER		ESC & NUL n m a p1..	1B 26 00 n m a p1..
EXECUTION			
BACKSPACE		BS	08
CARRIAGE RETURN		CR	0D
CLEAR BUFFER		CAN	18
CLEAR BUFFER/MASTER RESET		ESC @	1B 40
DELETE LAST CHARACTER	IN BUFFER	DEL	7F
FORM FEED		FF	0C
LF WITHOUT CR	PRINT DATA	ESC DC2	1B 12
LINE FEED		LF	0A
PRINT SUPPRESS OFF		DC1	11
PRINT SUPPRESS ON	NO PRINT UNTIL "DC1"	DC3	13
VAR. LINE FEED n/144"	n = 1 TO 127	ESC SOH n	1B 01 n
VAR. LINE FEED n/216"	n = 1 TO 255	ESC J n	1B 4A n
VAR. REV.LINE FEED n/216"	n = 1-255, 80 c only	ESC j n	1B 6A n
FORMATTING			
DOT POSITION ABSOLUTE	IN 1/60" UNITS	ESC $ n1 n2	1B 24 n1 n2
DOT POSITION RELATIVE	IN 1/120" UNITS	ESC \ n1 n2	1B 5C n1 n2
FORM LENGTH BY INCHES	n = 1 TO 22	ESC C NUL n	1B 43 00 n
FORM LENGTH BY LINES	n = 1 - 127	ESC C n	1B 43 n
HORIZONTAL TABULATOR SKIP		HT	09
HTABS CLEAR		ESC D NUL	1B 44 00
HTABS SET BY CHARACTERS		ESC D n1...n32 NUL	1B 44 n1..n32 00
MARGIN SET LEFT		ESC l n	1B 6C n
MARGIN SET RIGHT		ESC Q n	1B 51 n
SKIP OVER PERFORATION	n=1 TO 127 LINES	ESC N n	1B 4E n
SKIP OVER PERFORATION OFF		ESC O	1B 4F
VERTICAL TABULATOR CANCEL		ESC B NUL	1B 42 00
VERTICAL TABULATOR SET		ESC B n1...n16 NUL	1B 42 n1...n16 00

VERTICAL TABULATOR SKIP	SAME AS LF IF NO TAB	VT	0B
VFU CHANNEL SELECT	n = 0 to 7	ESC / n	1B 2F n
VFU LOAD	k = 1 to 16	ESC b n m1...mk NUL	1B 62 n m1...mk 00

GRAPHICS BIT IMAGE
==========

DENSITY DOUBLE	120 * 72 DPI	ESC Y	1B 59
DENS. DOUBLE,HALF SPEED	120 * 72 DPI	ESC L	1B 4C
DENSITY QUADRUPLE	240 * 72 DPI	ESC Z	1B 5A
DENSITY SINGLE	60 * 72 DPI	ESC K	1B 48
REASSIGN GRAPHICS MODE	ESC * TO ESC K,L,Y,Z	ESC ? s n	1B 3F s n
SELECT 8 BIT GRAPHICS		ESC * m n1 n2 v1-vk	1B 2A m n1 n2 v1-vk
SELECT 9 BIT GRAPHICS	SINGLE + DOUBLE DENS	ESC ^ a n1 n2 v...	1B 5E a n1 n2 v..

FUNCTION	COMMENT	ASCII	HEXADECIMAL
LINE SPACING			
6 LPI		ESC 2	1B 32
8 LPI		ESC 0	1B 30
LINE SPACING 7/72"	FOR 7 BIT GRAPHICS	ESC 1	1B 31
VAR. LINE SPACING n/216"	n = 0 TO 255	ESC 3 n	1B 33 n
VAR. LINE SPACING n/72"	n = 0 TO 85	ESC A n	1B 41 n
VAR.LINE SPACING n/144"	n = 1 TO 127	ESC SYN n	1B 16 n
MISCELLANEOUS			
HALF SPEED PRINTING OFF		ESC s 0	1B 73 30
HALF SPEED PRINTING ON		ESC s 1	1B 73 31
MSB SET 0		ESC =	1B 3D
MSB SET 1		ESC >	1B 3E
MSB SETTING CANCEL		ESC #	1B 23
PAPER OUT SENSOR OFF		ESC 8	1B 38
PAPER OUT SENSOR ON		ESC 9	1B 39
TYPEWRITER MODE OFF		ESC i 0	1B 69 30
TYPEWRITER MODE ON	192 / 292 ONLY !!!	ESC i 1	1B 69 31
UNIDIRECTIONAL PRINT OFF		ESC U 0	1B 55 30
UNIDIRECTIONAL PRINT ON		ESC U 1	1B 55 31
UNIDIR. PRINT (HOME HEAD)	FOR ONE LINE ONLY	ESC <	1B 3C
PRINT MODE			
10 CPI	PICA	ESC P	1B 50
12 CPI	ELITE	ESC M	1B 4D
CONDENSED MODE RESET	20=>12, 17=>10 CPI	DC2	12
CONDENSED MODE SET	10=>17, 12=>20 CPI	SI	0F
CONDENSED MODE SET	10=>17, 12=>20 CPI	ESC SI	1B 0F
DESIGNATES HSD MODE	SSD AT 12 CPI	ESC (1	1B 28 31
DESIGNATES NLQ MODE	LQ WITH 24 PINS	ESC x SOH	1B 78 01
DESIGNATES UTILITY MODE		ESC x NUL	1B 78 00
DOUBLE WIDTH OFF	BEFORE END OF LINE	DC4	14
DOUBLE WIDTH ON	FOR ONE LINE ONLY	SO	0E
DOUBLE WIDTH ON	FOR ONE LINE ONLY	ESC SO	1B 0E
EMPHASIZED OFF		ESC F	1B 46
EMPHASIZED ON		ESC E	1B 45
ENHANCED OFF	DOUBLE STRIKE	ESC H	1B 48
ENHANCED ON	DOUBLE STRIKE	ESC G	1B 47
HEIGHT DOUBLE OFF		ESC US NUL	1B 1F 00
HEIGHT DOUBLE ON		ESC US SOH	1B 1F 01
ITALICS OFF		ESC 5	1B 35
ITALICS ON		ESC 4	1B 34
NLQ AUTO JUSTIFICATION	LEFT,MID,RIGHT,FULL	ESC a n	1B 61 n
PROPORTIONAL SPACING OFF		ESC p 0	1B 70 30
PROPORTIONAL SPACING ON		ESC p 1	1B 70 31
SPACE BETWEEN CHARACTERS	0<=N<=127 (FX:63)	ESC SP n	1B 20 n
SUBSCRIPT OFF	ALSO SUPERSCRIPT OFF	ESC T	1B 54
SUBSCRIPT ON		ESC S 1	1B 53 31
SUPERSCRIPT OFF	ALSO SUBSCRIPT OFF	ESC T	1B 54
SUPERSCRIPT ON		ESC S 0	1B 53 30
UNDERLINE OFF		ESC - 0	1B 2D 31
UNDERLINE ON		ESC - 1	1B 2D 31
WIDTH DOUBLE OFF		ESC W 0	1B 57 30
WIDTH DOUBLE ON		ESC W 1	1B 57 31

I. Proportional characters: Width Table Firmware:

Proportional Spacing : (ESC p1 - ON, ESC p0 - OFF)
Italics : (ESC 4 - ON, ESC 5 - OFF)

CHARACTER CODE			SETWIDTH
HEX	DEC	OCT	#/120"
10	000	000	12
01	001	001	12
02	002	002	11
03	003	003	10
04	004	004	08
05	005	005	08
06	006	006	12
07	007	007	05
08	008	010	12
09	009	011	12
0A	010	012	11
0B	011	013	12
0C	012	014	12
0D	013	015	12
0E	014	016	12
0F	015	017	11
10	016	020	10
11	017	021	11
12	018	022	12
13	019	023	12
14	020	024	12
15	021	025	12
16	022	026	08
17	023	027	12
18	024	030	12
19	025	031	12
1A	026	032	12
1B	027	033	10
1C	028	034	11
1D	029	035	12
1E	030	036	12
1F	031	037	12
20	032	040	12
21	033	041	05
22	034	042	08
23	035	043	12
24	036	044	12
25	037	045	12
26	038	046	12
27	039	047	05
28	040	050	06
29	041	051	06
2A	042	052	12

CHARACTER CODE					SETWIDTH
HEX		DEC		OCT	#/120"
2B	-	043	_	053	= 12
2C	-	044	_	054	= 07
2D	-	045	_	055	= 12
2E	-	046	_	056	= 06
2F	-	047	_	057	= 10
30	-	048	_	060	= 12
31	-	049	_	061	= 08
32	-	050	_	062	= 12
33	-	051	_	063	= 12
34	-	052	_	064	= 12
35	-	053	_	065	= 12
36	-	054	_	066	= 12
37	-	055	_	067	= 12
38	-	056	_	070	= 12
39	-	057	_	071	= 12
3A	-	058	_	072	= 06
3B	-	059	_	073	= 06
3C	-	060	_	074	= 10
3D	-	061	_	075	= 12
3E	-	062	_	076	= 10
3F	-	063	_	077	= 12
40	-	064	_	100	= 12
41	-	065	_	101	= 12
42	-	066	_	102	= 12
43	-	067	_	103	= 12
44	-	068	_	104	= 12
45	-	069	_	105	= 12
46	-	070	_	106	= 12
47	-	071	_	107	= 12
48	-	072	_	110	= 12
49	-	073	_	111	= 08
4A	-	074	_	112	= 11
4B	-	075	_	113	= 12
4C	-	076	_	114	= 12
4D	-	077	_	115	= 12
4E	-	078	_	116	= 12
4F	-	079	_	117	= 12
50	-	080	_	120	= 12
51	-	081	_	121	= 12
52	-	082	_	122	= 12
53	-	083	_	123	= 12
54	-	084	_	124	= 12
55	-	085	_	125	= 12
56	-	086	_	126	= 12
57	-	087	_	127	= 12
58	-	088	_	130	= 10
59	-	089	_	131	= 12
5A	-	090	_	132	= 10
5B	-	091	_	133	= 08

CHARACTER CODE					SETWIDTH
HEX		DEC	OCT		#/120"
5C	-	092	134	=	10
5D	-	093	135	=	08
5E	-	094	136	=	12
5F	-	095	137	=	12
60	-	096	140	=	05
61	-	097	141	=	12
62	-	098	142	=	11
63	-	099	143	=	11
64	-	100	144	=	11
65	-	101	145	=	12
66	-	102	146	=	10
67	-	103	147	=	11
68	-	104	150	=	11
69	-	105	151	=	08
6A	-	106	152	=	09
6B	-	107	153	=	10
6C	-	108	154	=	08
6D	-	109	155	=	12
6E	-	110	156	=	11
6F	-	111	157	=	12
70	-	112	160	=	11
71	-	113	161	=	11
72	-	114	162	=	11
73	-	115	163	=	12
74	-	116	164	=	11
75	-	117	165	=	12
76	-	118	166	=	12
77	-	119	167	=	12
78	-	120	170	=	10
79	-	121	171	=	12
7A	-	122	172	=	10
7B	-	123	173	=	09
7C	-	124	174	=	05
7D	-	125	175	=	09
7E	-	126	176	=	12
7F	-	127	177	=	--
80	-	*128*	*200*	=	*11*
81	-	*129*	*201*	=	*11*
82	-	*130*	*202*	=	*11*
83	-	*131*	*203*	=	*11*
84	-	*132*	*204*	=	*08*
85	-	*133*	*205*	=	*08*
86	-	*134*	*206*	=	*12*
87	-	*135*	*207*	=	*10*
88	-	*136*	*210*	=	*11*
89	-	*137*	*211*	=	*12*
8A	-	*138*	*212*	=	*12*
8B	-	*139*	*213*	=	*12*
8C	-	*140*	*214*	=	*12*

CHARACTER CODE				SETWIDTH
HEX	DEC	OCT		#/120"
8D	*141*	*215*	=	*12*
8E	*142*	*216*	=	*11*
8F	*143*	*217*	=	*11*
90	*144*	*220*	=	*12*
91	*145*	*221*	=	*11*
92	*146*	*222*	=	*12*
93	*147*	*223*	=	*12*
94	*148*	*224*	=	*12*
95	*149*	*225*	=	*11*
96	*150*	*226*	=	*09*
97	*151*	*227*	=	*12*
98	*152*	*230*	=	*12*
99	*153*	*231*	=	*12*
9A	*154*	*232*	=	*11*
9B	*155*	*233*	=	*11*
9C	*156*	*234*	=	*12*
9D	*157*	*235*	=	*12*
9E	*158*	*236*	=	*11*
9F	*159*	*237*	=	*12*
A0	*160*	*240*	=	*12*
A1	*161*	*241*	=	*10*
A2	*162*	*242*	=	*10*
A3	*163*	*243*	=	*12*
A4	*164*	*244*	=	*11*
A5	*165*	*245*	=	*12*
A6	*166*	*246*	=	*12*
A7	*167*	*247*	=	*05*
A8	*168*	*250*	=	*08*
A9	*169*	*251*	=	*08*
AA	*170*	*252*	=	*12*
AB	*171*	*253*	=	*12*
AC	*172*	*254*	=	*08*
AD	*173*	*255*	=	*12*
AE	*174*	*256*	=	*07*
AF	*175*	*257*	=	*10*
B0	*176*	*260*	=	*12*
B1	*177*	*261*	=	*09*
B2	*178*	*262*	=	*12*
B3	*179*	*263*	=	*12*
B4	*180*	*264*	=	*12*
B5	*181*	*265*	=	*12*
B6	*182*	*266*	=	*11*
B7	*183*	*267*	=	*12*
B8	*184*	*270*	=	*12*
B9	*185*	*271*	=	*11*
BA	*186*	*272*	=	*08*
BB	*187*	*273*	=	*09*
BC	*188*	*274*	=	*10*
BD	*189*	*275*	=	*11*

CHARACTER CODE				SETWIDTH
HEX	DEC	OCT		#/120"
BE	*190*	*276*	=	*09*
BF	*191*	*277*	=	*11*
C0	*192*	*300*	=	*12*
C1	*193*	*301*	=	*12*
C2	*194*	*302*	=	*12*
C3	*195*	*303*	=	*12*
C4	*196*	*304*	=	*12*
C5	*197*	*305*	=	*12*
C6	*198*	*306*	=	*12*
C7	*199*	*307*	=	*12*
C8	*200*	*310*	=	*12*
C9	*201*	*311*	=	*10*
CA	*202*	*312*	=	*12*
CB	*203*	*313*	=	*12*
CC	*204*	*314*	=	*10*
CD	*205*	*315*	=	*12*
CE	*206*	*316*	=	*12*
CF	*207*	*317*	=	*12*
D0	*208*	*320*	=	*12*
D1	*209*	*321*	=	*12*
D2	*210*	*322*	=	*12*
D3	*211*	*323*	=	*12*
D3	*212*	*324*	=	*12*
D5	*213*	*325*	=	*12*
D6	*214*	*326*	=	*11*
D7	*215*	*327*	=	*12*
D8	*216*	*330*	=	*12*
D9	*217*	*331*	=	*12*
DA	*218*	*332*	=	*12*
DB	*219*	*333*	=	*11*
DC	*220*	*334*	=	*07*
DD	*221*	*335*	=	*11*
DE	*222*	*336*	=	*10*
DF	*223*	*337*	=	*12*
E0	*224*	*340*	=	*05*
E1	*225*	*341*	=	*11*
E2	*226*	*342*	=	*11*
E3	*227*	*343*	=	*11*
E4	*228*	*344*	=	*12*
E5	*229*	*345*	=	*11*
E6	*230*	*346*	=	*12*
E7	*231*	*347*	=	*11*
E8	*232*	*350*	=	*11*
E9	*233*	*351*	=	*09*
EA	*234*	*352*	=	*10*
EB	*235*	*353*	=	*11*
EC	*236*	*354*	=	*09*
ED	*237*	*355*	=	*11*
EE	*238*	*356*	=	*10*

CHARACTER CODE				SETWIDTH
HEX		DEC	OCT	#/120"
EF	-	*239*	*357*	*11*
F0	-	*240*	*360*	*11*
F1	-	*241*	*361*	*11*
F2	-	*242*	*362*	*10*
F3	-	*243*	*363*	*11*
F4	-	*244*	*364*	*10*
F5	-	*245*	*365*	*11*
F6	-	*246*	*366*	*10*
F7	-	*247*	*367*	*12*
F8	-	*248*	*370*	*12*
F9	-	*249*	*371*	*11*
FA	-	*250*	*372*	*12*
FB	-	*251*	*373*	*10*
FC	-	*252*	*374*	*09*
FD	-	*253*	*375*	*10*
FE	-	*254*	*376*	*12*
FF	-	*255*	*377*	*12*

ISO-Tabelle für 190 Epson normal (ESC R n)

Position		1	2	3	4	5	6	7	8	9	10	11	12
Decimal Code		35	36	64	91	92	93	94	96	123	124	125	126
hexadec.	ESC R n												
ASCII	0	12	12	12	08	10	08	12	05	09	05	09	12
FRENCH	1	12	12	12	08	11	10	12	05	12	11	12	08
GERMAN	2	12	12	10	12	12	12	12	05	12	10	11	11
BRITISH	3	12	12	12	08	10	08	12	05	09	05	09	12
DANISH 1	4	12	12	12	12	12	12	12	05	12	12	12	12
SWEDISH 1	5	12	12	12	12	12	12	12	12	12	10	12	11
ITALIAN	6	12	12	12	08	10	12	12	11	12	10	12	08
SPANISH	7	12	12	12	05	12	12	12	05	08	11	09	12
JAPANESE	8	12	12	12	08	12	08	12	05	09	05	09	12
NORWEGIAN	9	12	12	12	12	12	12	12	12	12	12	12	11
DANISH 2	0A	12	12	12	12	12	12	12	12	12	12	12	11
FRENCH-CANADA	0B	11	12	12	12	11	12	?	12	12	11	12	12
DUTCH	0C	12	12	12	08	12	08	12	05	09	12	09	12
SWEDISH 2	0D	12	12	12	12	12	12	12	12	12	10	12	11
SWEDISH 3	0E	10	12	12	12	12	12	12	12	12	10	12	11
SWEDISH 4	0F	10	12	12	12	12	12	12	12	12	10	12	11

Value of n can also between 30 - 39 hex equal to 00 - 09 hex!

ISO-Tabelle für 190 Epson italics (ESC R n)

Position	1	2	3	4	5	6	7	8	9	10	11	12
Decimal Code	35	36	64	91	92	93	94	96	123	124	125	126
hexadec. ESC R n												
ASCII 0	12	11	12	11	07	11	10	05	10	09	10	12
FRENCH 1	12	11	11	08	11	12	10	05	11	11	11	09
GERMAN 2	12	11	12	12	12	12	10	05	11	11	12	11
BRITISH 3	12	11	12	11	07	11	10	05	10	09	10	12
DANISH 1 4	12	11	12	12	12	12	10	05	12	11	11	12
SWEDISH 1 5	12	10	12	12	12	12	12	11	11	11	11	12
ITALIAN 6	12	11	12	08	07	11	10	11	11	11	11	08
SPANISH 7	12	11	12	10	12	11	10	05	09	12	10	12
JAPANESE 8	12	11	12	11	12	11	10	05	10	09	10	12
NORWEGIAN 9	12	10	12	12	12	12	12	11	12	11	11	12
DANISH 2 0A	12	11	12	12	12	12	12	11	12	11	11	12
FRENCH-CANADA 0B	12	11	11	12	11	12	?	12	11	11	11	12
DUTCH 0C	12	11	12	11	12	11	10	05	10	12	10	12
SWEDISH 2 0D	12	11	12	12	12	12	12	11	11	11	11	12
SWEDISH 3 0E	12	11	12	12	12	12	12	11	11	11	11	12
SWEDISH 4 0F	12	10	12	12	12	12	10	11	11	11	11	12

Value of n can also between 30 - 39 hex equal to 00 - 09 hex!

Parallel Centronics IF	Seite: 41
RS 232 High Speed IF	Seite: 42-43
RS 232 Super Speed IF	Seite: 44-45
Kabelvorschlag	Seite: 46
RS 422A High Speed IF	Seite: 47-49
RS 422A Super Speed IF	Seite: 50-52
Current Loop IF	Seite: 53-56

Centronics-Parallel Interface

36-poliges Interface

$\overline{\text{Strobe}}$	-->	**o** 1	19 **o**	---	GND/0V
D0	-->	**o** 2	20 **o**	---	GND/0V
D1	-->	**o** 3	21 **o**	---	GND/0V
D2	-->	**o** 4	22 **o**	---	GND/0V
D3	-->	**o** 5	23 **o**	---	GND/0V
D4	-->	**o** 6	24 **o**	---	GND/0V
D5	-->	**o** 7	25 **o**	---	GND/0V
D6	-->	**o** 8	26 **o**	---	GND/0V
D7	-->	**o** 9	27 **o**	---	GND/0V
$\overline{\text{ACK}}$	<--	**o** 10	28 **o**	---	GND/0V
Busy	<--	**o** 11	29 **o**	---	GND/0V
Paper End	<--	**o** 12	30 **o**	---	GND/0V
Select	<--	**o** 13	31 **o**	<--	$\overline{\text{Input Prime}}$ ***)
Auto Feed *)	-->	**o** 14	32 **o**	-->	$\overline{\text{Fault}}$
		o	**o**		
GND/0V	---	**o** 16	**o**		
Shield Ground	---	**o** 17	**o**		
+5V **	<--	**o** 18	36 **o**		

--- **o** --- no direction
<-- **o** --> from Printer
--> **o** <-- to Printer

Jumper Setting for Centronics Parallel Internal Test

*) **SP :** A B
Auto Feed enable o o o
Auto Feed disable o o o

***) **SP :** A B
I-Prime enable o o o
I-Prime disable o o o

) **SP : A B
+5V available o o o
+5V not available o o o

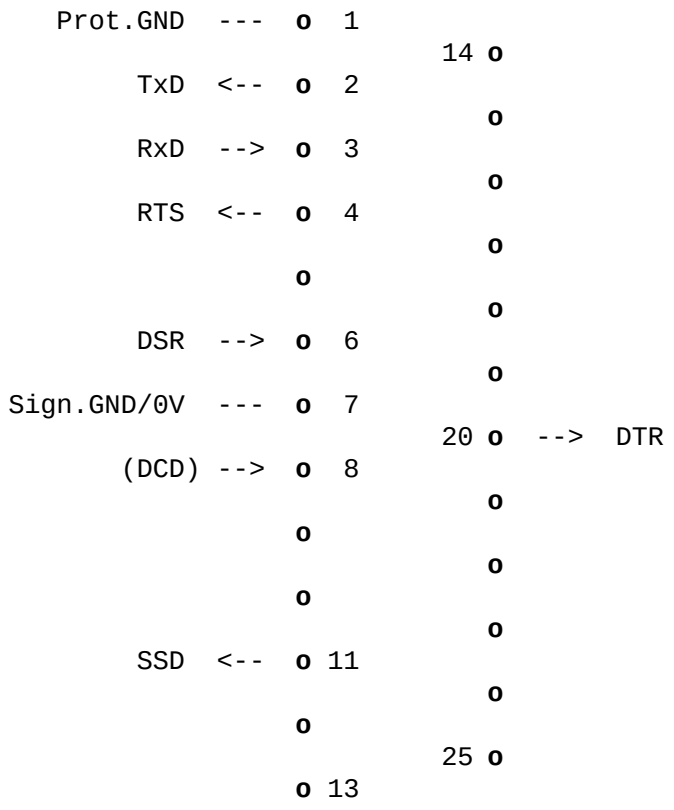
High Speed RS-232C Serial Interface Board

SWITCH 1 (SW1) (0 = OFF, 1 = ON)

```
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | --- = Factory Setting
---------------------------------
  |   |   |   |   |   |   |   0 ----- = not used, must be off
  |   |   |   |   |   |   |   1 ----- = not used
  |   |   |   |   |   |   0 ----- = not used, must be off
  |   |   |   |   |   |   1 ----- = not used
  |   |   |   |   |   0 ----- = parity disabled
  |   |   |   |   |   1 ----- = parity enabled
  |   |   |   |   0 ----- = not used, must be off
  |   |   |   |   1 ----- = not used
  |   0   0   0 ----- =  110 bps
  |   1   0   0 ----- =  150 bps
  |   0   1   0 ----- =  300 bps
  |   1   1   0 ----- =  600 bps
  |   0   0   1 ----- = 1200 bps
  |   1   0   1 ----- = 2400 bps
  |   0   1   1 ----- = 4800 bps
  |   1   1   1 ----- = 9600 bps
  0 ----- = SSD Signal: space when ready
  1 ----- =             mark when ready
```

High Speed RS-232C Serial Interface Board

25-poliges Interface



--- --- no direction
<-- --> from Printer
--> <-- to Printer

Testplug RS232C

TxD	2	-->	3	RxD
RTS	4	-->	5	CTS
(DCD)	8	<--	11	SSD
DTR	20	-->	6	DSR

Super Speed RS-232C Serial Interface Board

SWITCH 1 (SW1) (0 = OFF, 1 = ON)

```
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | --- = Factory Setting
---------------------------------
  |   |   |   |   |   |   0   0 ----- = BUSY on SSD/Pin 11 (+12V)
  |   |   |   |   |   |   0   1 ----- = BUSY on SSD/Pin 11 (-12V)
  |   |   |   |   |   |   1   0 ----- = BUSY on RTS/Pin 04 (-12V)
  |   |   |   |   |   |   1   1 ----- = BUSY on DTR/Pin 20 (-12V)
  |   |   |   |   0   0 ----- = Diagn. Mode/Monitor Test= HEX DUMP
  |   |   |   |   0   1 ----- = Normal Mode (for printing)
  |   |   |   |   1   0 ----- = Diagn. Mode/Circuit test (test plug)
  |   |   |   |   1   1 ----- = Normal Mode (for printing)
  |   |   |   0 ----- = Protocol: XON/XOFF
  |   |   |   1 ----- =           Ready/Busy
  |   0   0 ----- = Data bits: 7 (parity bit must be enabled)
  |   |   1 ----- =           8
  |   0 ----- = parity bit enabled
  |   1 ----- = parity bit disabled
  0 ----- = even parity
  I ----- = odd parity
```

SWITCH 2 (SW2) (0 = OFF, 1 = ON)

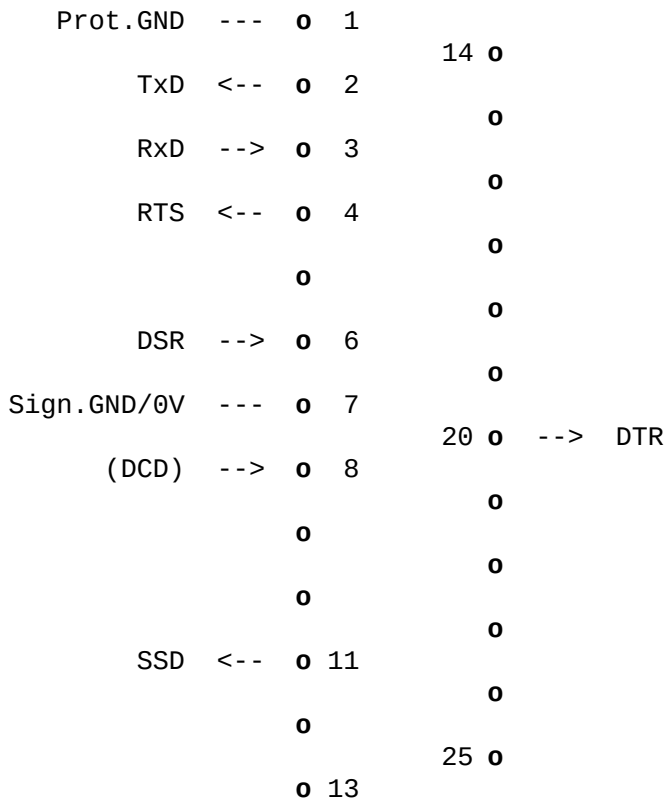
```
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | --- = Factory Setting
---------------------------------
  |   |   |   |   |   |   |   0 ----- = not used
  |   |   |   |   |   |   |   1 ----- = not used
  |   |   |   |   |   |   0 ----- = not used
  |   |   |   |   |   |   1 ----- = not used
  |   |   |   |   |   0 ----- = Busy-time: (max.)   1s
  |   |   |   |   |   1 ----- =            (min.) 200ms
  |   |   |   |   0 ----- = Buffer full:  32 Byte (*)
  |   |   |   |   1 ----- =              512 Byte
  |   |   |   0 ----- = DSR disabled/passive
  |   |   |   1 ----- = DSR enabled/active
  0   0   0 ----- =    110 bps
  1   0   0 ----- =    300 bps
  0   1   0 ----- =    600 bps
  1   1   0 ----- =  1.200 bps
  0   0   1 ----- =  2.400 bps
  1   0   1 ----- =  4.800 bps
  0   1   1 ----- =  9.600 bps
  1   1   1 ----- = 19.200 bps
```

Notes:

1.) SW1 is invalid if no parity is used.
2.) Setting the data length to 7 bits with no parity is not available.

Super Speed RS-232C Serial Interface Board

25-poliges Interface



---	---	no direction
<--	-->	from Printer
-->	<--	to Printer

Testplug RS232C

TxD	2	-->	3	RxD
RTS	4	-->	5	CTS
(DCD)	8	<--	11	SSD
DTR	20	-->	6	DSR

IBM Personal Computer XT **OKI -RS 232C**

25 pins SUB-D (female) connector — 25 pins SUB-D male connector

Name	Pin-No.		Pin-No.	Name
DTE				DTE
Prot.GND	01	==========	01	Prot.GND
TxD	02	>----------	02	TxD
RxD	03	<----------	03	RxD
RTS	04	>---	04	RTS
CTS	05	<---	05	CTS
DSR	06	<---	06	DSR
DCD	08	<---	08	DCD
DTR	20	>----------	20	DTR
Sig.GND	07	----------	07	Sig.GND

IBM Personal Computer AT **OKI -RS 232C**

09 pins SUB-D (female) connector — 25 pins SUB-D male connector

Name	Pin-No.		Pin-No.	Name
special				DTE
Prot.GND		==========	01	Prot.GND
RxD	02	<----------	02	TxD
TxD	03	>----------	03	RxD
CTS	08	<---	04	RTS
RTS	07	>---	05	CTS
DSR	06	<---	06	DSR
DCD	01	<---	08	DCD
DTR	04	>----------	20	DTR
Sig.GND	05	----------	07	Sig.GND

SWITCH 1 (SW1) (0 = OFF, 1 = ON, X = Depending System Configuration)

1	2	3	4	5	6	7	8	
X	X	X	X	1	1	1	1	**--- = Sample Cabel**

SWITCH 2 (SW2) (0 = OFF, 1 = ON)

1	2	3	4	5	6	7	8	
X	X	X	0	X	X	X	X	**--- = Sample Cabel**

High Speed RS-422A Serial Interface Board

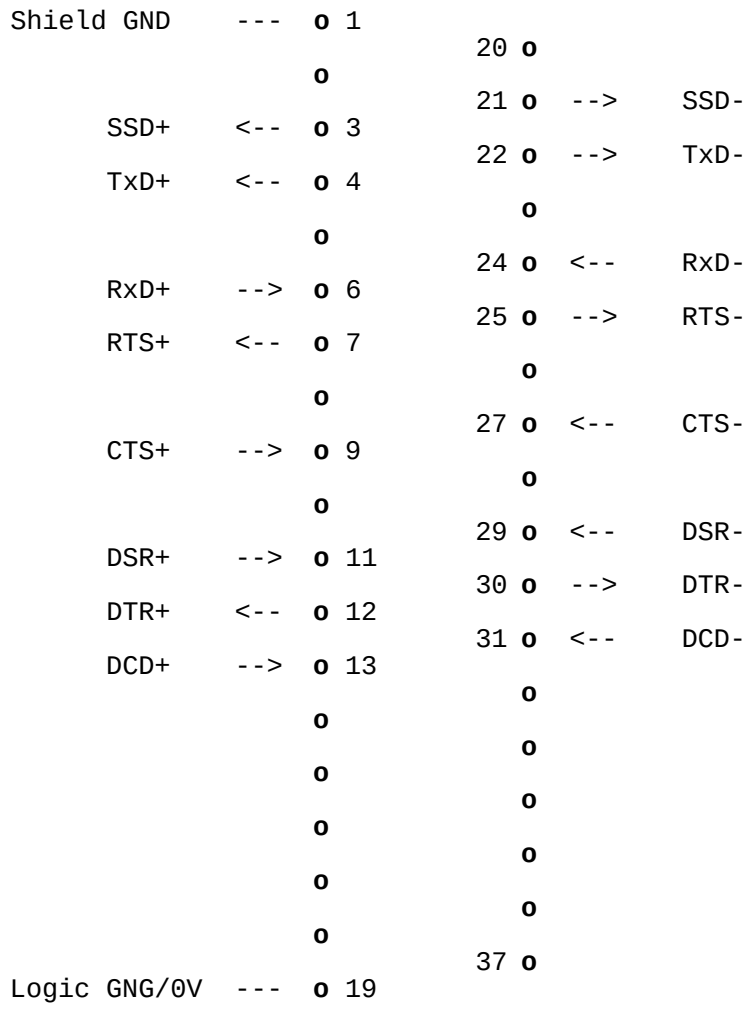
SWITCH 1 (SW1) (0 = OFF, 1 = ON)

1	2	3	4	5	6	7	8	
0	0	0	1	0	1	0	0	**--- = Factory Setting**

```
                                  |   |   |   |   |   |   |   0 ----- = not used, must be off
                                  |   |   |   |   |   |   |   1 ----- = not used
                                  |   |   |   |   |   |   0 ----- = not used, must be off
                                  |   |   |   |   |   |   1 ----- = not used
                                  |   |   |   |   |   0 ----- = parity disabled
                                  |   |   |   |   |   1 ----- = parity enabled
                                  |   |   |   |   0 ----- = not used, must be off
                                  |   |   |   |   1 ----- = not used
                                  |   0   0   0 ----- =  110 bps
                                  |   1   0   0 ----- =  150 bps
                                  |   0   1   0 ----- =  300 bps
                                  |   1   1   0 ----- =  600 bps
                                  |   0   0   1 ----- = 1200 bps
                                  |   1   0   1 ----- = 2400 bps
                                  |   0   1   1 ----- = 4800 bps
                                  |   1   1   1 ----- = 9600 bps
                                  0 ----- = SSD Signal: space when ready
                                  1 ----- =             mark when ready
```

High Speed RS-422A Serial Interface Board

37-poliges Interface



---	o	---	no direction
<--	o	-->	from Printer
-->	o	<--	to Printer

High Speed RS-422A Serial Interface Board

Testplug RS422A

```
TxD   4 -->  6  RxD
TxD  22 --> 24  RxD

RTS   7 -->  9  CTS
RTS  25 --> 27  CTS

(DCD) 13 <--  3  SSD
(DCD) 31 <-- 21  SSD

DTR  12 --> 11  DSR
DTR  30 --> 29  DSR
```

Super Speed RS-422A Serial Interface Board

SWITCH 1 (SW1) (0 = OFF, 1 = ON)

```
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | --- = Factory Setting
---------------------------------
  |   |   |   |   |   |   0   0 ----- = BUSY on SSD/Pin 3,12
  |   |   |   |   |   |   0   1 ----- = BUSY on SSD/Pin 3,12
  |   |   |   |   |   |   1   0 ----- = BUSY on RS/Pin 7,25
  |   |   |   |   |   |   1   1 ----- = BUSY on TR/Pin 12,30
  |   |   |   |   0   0 ----- = Diagnostic mode/Monitor Test=HEX DUMP
  |   |   |   |   0   1 ----- = Normal Mode (for printing)
  |   |   |   |   1   0 ----- = Diagn. Mode/Circuit test (test plug)
  |   |   |   |   1   1 ----- = Normal Mode (for printing)
  |   |   |   0 ----- = Protocol: XON/XOFF
  |   |   |   1 ----- =           Ready/Busy
  |   0   0 ----- = Data bits: 7 (parity bit must be enabled)
  |   |   1 ----- =           8
  |   0 ----- = parity bit enabled
  |   1 ----- = parity bit disabled
  0 ----- = even parity
  I ----- = odd parity
```

SWITCH 2 (SW2) (0 = OFF, 1 = ON)

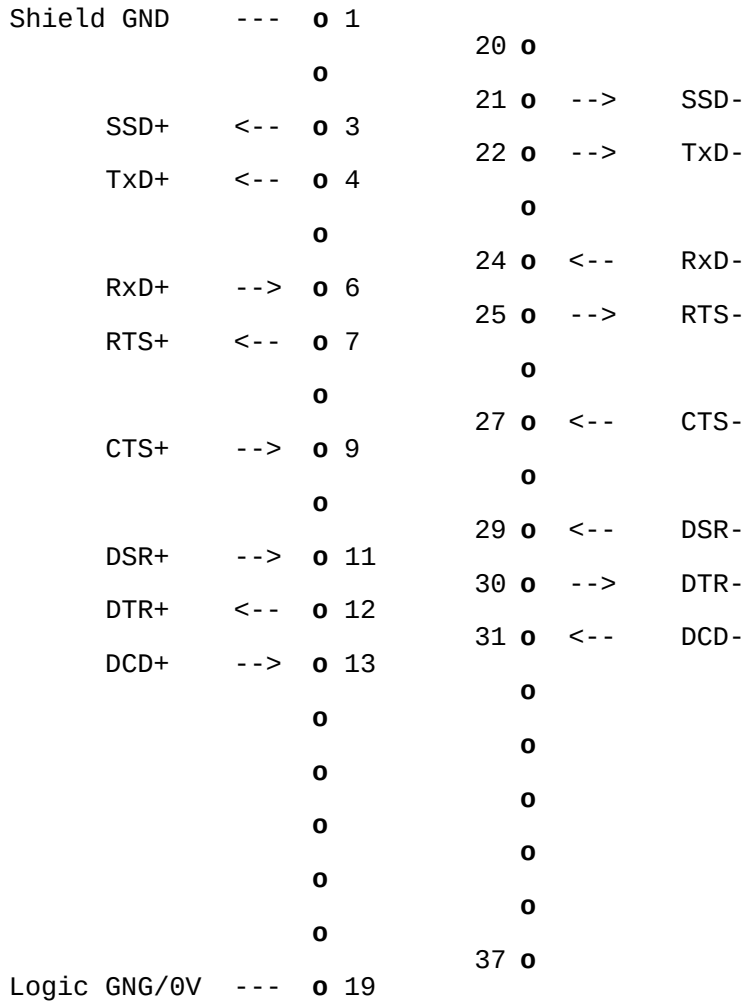
```
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | --- = Factory Setting
---------------------------------
  |   |   |   |   |   |   |   0 ----- = not used, must be off
  |   |   |   |   |   |   |   1 ----- = not used
  |   |   |   |   |   |   0 ----- = not used, must be off
  |   |   |   |   |   |   1 ----- = not used
  |   |   |   |   |   0 ----- = Busy-time: (max.)   1s
  |   |   |   |   |   1 ----- =            (min.) 200ms
  |   |   |   |   0 ----- = Buffer full:  32 Byte (*)
  |   |   |   |   1 ----- =              512 Byte
  |   |   |   0 ----- = DSR disabled/passive
  |   |   |   1 ----- = DSR enabled/active
  0   0   0 ----- =    110 bps
  1   0   0 ----- =    300 bps
  0   1   0 ----- =    600 bps
  1   1   0 ----- =  1.200 bps
  0   0   1 ----- =  2.400 bps
  1   0   1 ----- =  4.800 bps
  0   1   1 ----- =  9.600 bps
  1   1   1 ----- = 19.200 bps
```

Notes:

1.) SW1 is invalid if no parity is used.
2.) Setting the data length to 7 bits with no parity is not available.

Super Speed RS-422A Serial Interface Board

37-poliges Interface



Super Speed RS-422A Serial Interface Board

Testplug

TxD	4	-->	6	RxD
TxD	22	-->	24	RxD
RTS	7	-->	9	CTS
RTS	25	-->	27	CTS
(DCD)	13	<--	3	SSD
(DCD)	31	<--	21	SSD
DTR	12	-->	11	DSR
DTR	30	-->	29	DSR

Current Loop Interface (seriell)

SWITCH 1 (SW1) (0 = OFF, 1 = ON, x = not used or don't care)

```
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | --- = Factory Setting
---------------------------------
  |   |   |   |   |   |   |   0 ----- = Three-wire/four wire
  |   |   |   |   |   |   |   1 ----- = Two-wire
  |   |   |   |   |   |   0 ----- = not used
  |   |   |   |   |   |   1 ----- = not used
  |   |   |   |   |   0 ----- = not used
  |   |   |   |   |   1 ----- = not used
  |   |   |   0   0 ----- = Protocol: Busy/Ready
  |   |   |   1   0 ----- =           XON/XOFF, DC1/DC3
  |   |   |   0   1 ----- = Centronics Blocked Duplex
  |   |   |   1   1 ----- = Selftest
  |   |   0 ----- = Data bits: 7 (parity bit must be enabled)
  |   |   1 ----- =            8
  |   0 ----- = parity bit enabled
  |   1 ----- = parity bit disabled
  0 ----- = even parity
  I ----- = odd parity
```

SWITCH 2 (SW2) (0 = OFF, 1 = ON, x = not used or don't care)

```
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | x | 1 | 1 | 1 | x | --- = Factory Setting
---------------------------------
  |   |   |   |   |   |   |   0 ----- = not used, must be off
  |   |   |   |   |   |   |   1 ----- = not used
  |   |   |   |   |   |   0 ----- = Polarity of B+: MARK at Busy
  |   |   |   |   |   |   1 ----- =                 SPACE at Busy
  |   |   |   |   |   0 ----- = Busy-time: (max.)   1s
  |   |   |   |   |   1 ----- =            (min.) 200ms
  |   |   |   |   0 ----- = Buffer full:  32 Byte
  |   |   |   |   1 ----- =              512 Byte
  |   |   |   0 ----- = not used
  |   |   |   1 ----- = not used
  0   0   0 ----- =   110 bps
  1   0   0 ----- =   150 bps
  0   1   0 ----- =   300 bps
  1   1   0 ----- =   600 bps
  0   0   1 ----- = 1.200 bps
  1   0   1 ----- = 2.400 bps
  0   1   1 ----- = 4.800 bps
  1   1   1 ----- = 9.600 bps
```

Notes:

1.) SW1 is invalid if no parity is used.
2.) Setting the data length to 7 bits with no parity is not available.

Two-Wire Connections:

a) Current Source: System Side/Host

Used Pins: D- = pin 10 and B+ = pin 18 must be jumpered.
Used Pins: D+ = pin 9 and B- = pin 19 only.

SP1: **A B**
o-o o

SP2: **A B**
o-o o

b) Current Source: Printer Side
Used Pins: D- = pin 10 and B+ = pin 18 must be jumpered.
Used Pins: B- = pin 19 and SG = pin 7 only.

SP1: **A B**
o o-o

SP2: **A B**
o-o o

Three-Wire Connection:

Current Source: Printer Side only
Used Pins: D- = pin 10, B- = pin 19, and SG = pin 7 only.

SP1: **A B**
o o-o

SP2: **A B**
o o-o

Four-Wire Connection:

Current Source: System Side, Host only
Used Pins: D+ = pin 9, D- = pin 10, B+ = pin 18,
and D- = pin 19 only.

SP1: **A B**
o-o o

SP2: **A B**
o-o o

Remark:
- For 'Two-Wire Connections' only 'STX/ETX/ACK/NAK Handshake' possible!
- For 'Three- and Four-Wire Connections' all handshaks are supported.

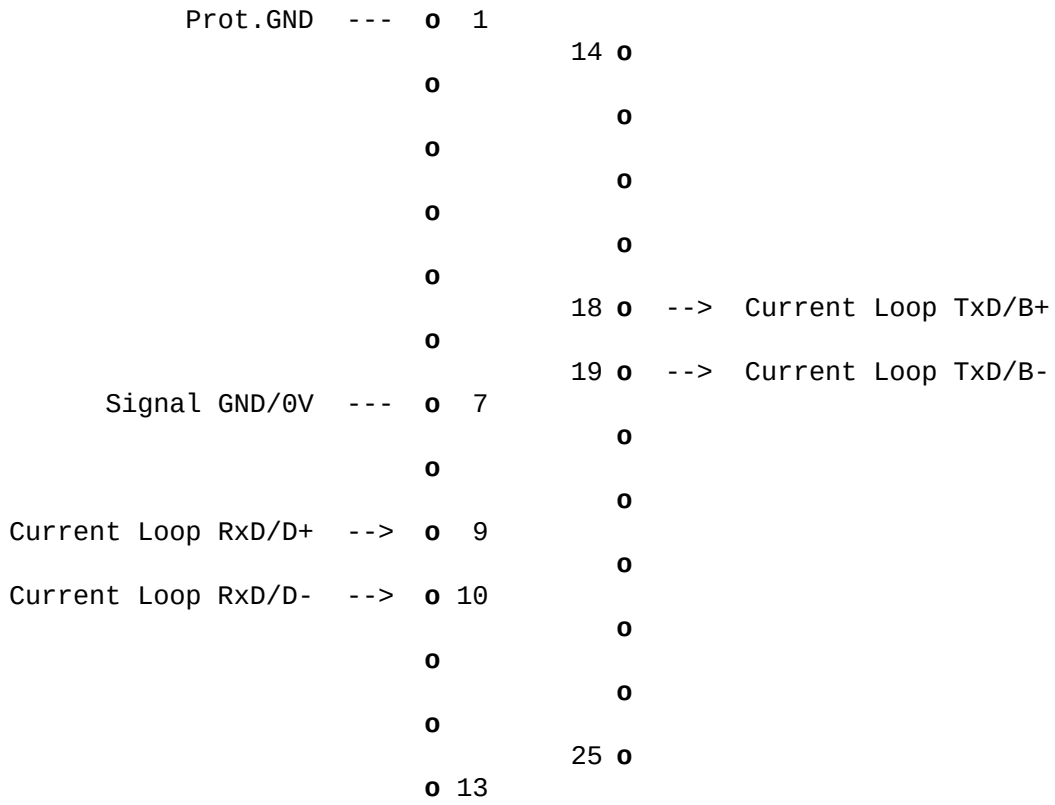
Current Loop Interface (seriell)

SP1:	**A**	**B**
RxD passive	o-o	o
RxD active	o	o-o

SP2:	**A**	**B**
TxD passive	o-o	o
TxD aktive	o	o-o

Current Loop Interface (seriell)

25-poliges Interface



---	o	---
<--	o	-->
-->	o	<--

no direction
from Printer
to Printer

Testplug for Current Loop Internal Test

```
Current Loop RxD/D-  10 <-- 18  Current Loop TxD/B+

      Signal GND/0V   7 <-- 19  Current Loop TxD/B-
```

Jumper Setting for Current Loop Internal Test

```
    SP1:        A   B          SP2:         A   B
    RxD active  o o-o          TxD passive  o-o o
```

Switch Setting for Current Loop Internal Test

SWITCH 1 (SW1) (0 = OFF, 1 = ON, x = not used or don't care)

1	2	3	4	5	6	7	8	
x	x	x	1	1	x	x	x	--- = Self Test Setting

SWITCH 2 (SW2) (0 = OFF, 1 = ON, x = not used or don't care)

1	2	3	4	5	6	7	8	
x	x	x	x	x	x	x	x	--- = Self Test Setting